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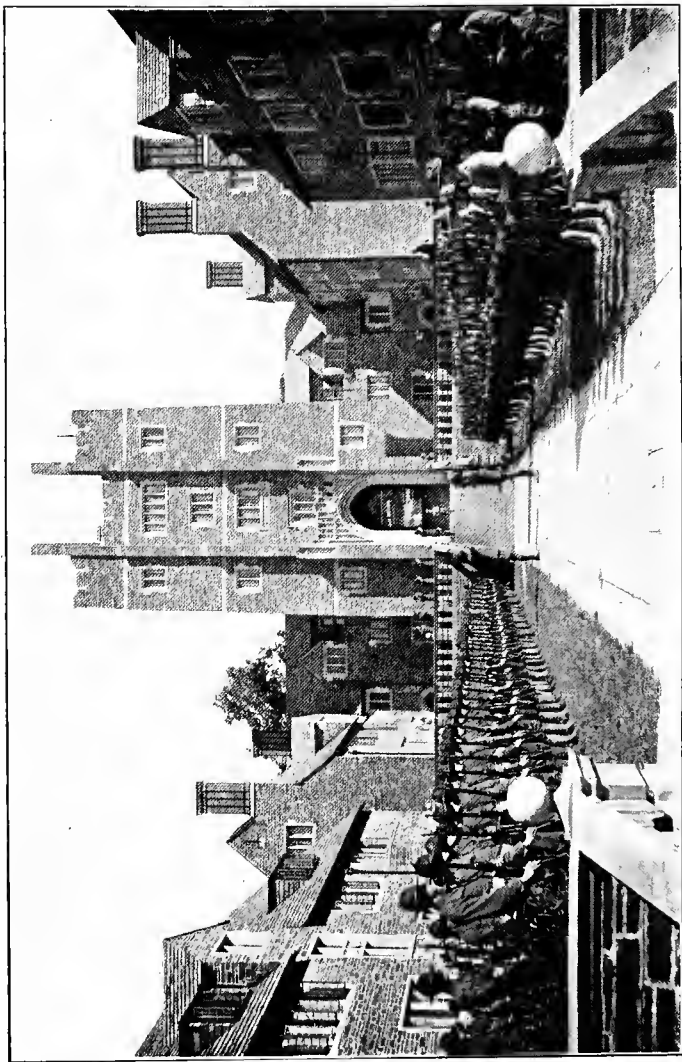
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PROBLEMS OF WAR AND OF RECONSTRUCTION

EDITED BY
FRANCIS G. WICKWARE

THE COLLEGES
IN WAR TIME AND AFTER



CORNELL UNIVERSITY: INAUGURATION CEREMONY OF THE STUDENTS' ARMY TRAINING CORPS, OCTOBER 1, 1918

PROBLEMS OF WAR AND OF RECONSTRUCTION

THE COLLEGES IN WAR TIME AND AFTER

A CONTEMPORARY ACCOUNT OF THE EFFECT OF
THE WAR UPON HIGHER EDUCATION IN AMERICA

BY

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WITH AN INTRODUCTION BY

PHILANDER P. CLAXTON

UNITED STATES COMMISSIONER OF EDUCATION



ILLUSTRATED

D. APPLETON AND COMPANY

NEW YORK

LONDON

1919

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PREFACE

It is apparent to all that the higher educational system of the United States has suffered a war change. Following, as it has, immediately upon the reconstruction of educational ideals and standards which marked the past two decades, this war change has added the last touches to an academic condition so new to us as still to seem largely unfamiliar. Before our entrance into the world war we already realized the presence of a swift current of innovation, carrying collegiate education into uncharted seas of activity. Since April, 1917, this current has become a rushing torrent, sweeping before it all the old traditional landmarks from shores hitherto untouched by change. The curriculum, the semester division, the customs of student life, whole departments of learning — all these have been torn from their moorings and floated off into a remoteness from which, in their old form, they may never return.

It is difficult, while living in the midst of such changes, to view them in their proper perspective. This volume can at best claim to be but a contemporary account of the conduct of higher education during the war period. It is perhaps impossible to draw from all the rapidly crowding events of the past two years the certain conclusions which a longer interval and a maturer study will allow. Often during the preparation of the following pages, events happened which necessitated a recasting of much subject matter. Thus, for example, the change in the draft ages at the end of the summer of 1918 brought about so vital a revision in the plans for the Students' Army Train-

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ing Corps that every college in the land was directly affected and the whole world of higher education reconstructed, as it were, in a day. Finally, when the material was already in the hands of the publisher there came the glorious news of November 11, the news of the signing of the armistice. A little later it was decided to demobilize the Students' Army Training Corps at once and to extend to the colleges some plan similar to the Reserve Officers' Training Corps already in existence at a few institutions. Doubtless the time of reconstruction to come will bring many readjustments in college life. An effort has been made in the final chapter to forecast some of these.

Much of the information here used has come from personal contact and association with college men in Washington. Often the unwritten stories of the inception of great movements are of considerable historic interest. But little, for example, has been published hitherto regarding the unofficial, or even the official, events which led up to governmental recognition of the college as a factor in war. For this reason considerable space has here been given to the succession of events that marked the formation of the War Department's Committee on Education and Special Training.

The greater part of the statistical material herein presented was gathered through the agency of the United States Bureau of Education, where the writer enjoyed the privilege of serving as special collaborator in the Division of Higher Education during the momentous spring and early summer of 1918. His thanks are due to Dr. Philander P. Claxton, Commissioner of Education, and especially to Dr. Samuel P. Capen, Specialist in Higher Education, for the many courtesies extended to him during his stay at the Bureau. Dr. Capen, through his connection with

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the Committee on Education and Special Training of the War Department and his wide association with every form of academic activity in the land, has doubtless been in better position than any other man to observe the progress of educational events during the war. More than this, he has been associated with nearly every important movement of value to higher education since our entrance into the war. To his wise counsel and untiring resourcefulness the academic system of the Nation owes more than it can ever repay.

PARKE R. KOLBE.

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INTRODUCTION

The college has ever been an important factor in American life. Its influence has increased constantly from Colonial days and was never greater than now. From being the support of the church and the source of general culture, it gradually came to affect vitally our industry, our statesmanship, our ideals, the form and spirit of our society. In times of crisis and need, as in the Revolution and the Civil War, the colleges have been the first to respond. They have emptied their halls into the ranks of the Army, and their alumni have responded to the call for wise and courageous leadership. On memorial tablets in college chapels and society halls are engraved names of thousands of the best who have given their services and their lives to their country. Although only a very small percentage of American youth have attended college, yet the college rosters contain the names of a very large proportion of the men and women whom we honor because of the contributions they have made to the national wealth and welfare.

The American people have shown their faith in the colleges by the eagerness with which they have established them and the liberality with which they have supported them. Almost every pioneer community has planted its college, either to live and flourish or to wither and die. Nearly six hundred of them have lived and many of them have flourished, perhaps far beyond the expectations of their founders. Some of them have become rich beyond precedent. There are colleges in America grown to the estate of universities, some private and endowed, others supported by states,

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with annual incomes larger than the combined incomes of all the colleges of Oxford. The growing appreciation of the value of the college and the university is indicated by the fact that between 1892 and 1916 the working income of the colleges, universities, and schools of technology of the United States increased from less than twenty million dollars to more than one hundred millions.

The response of American colleges and universities to the national need in the Great War through which we have just passed was so spontaneous and generous and their contributions to all departments of service were so great that neither their loyalty nor their efficiency can ever be doubted. Even before we entered the war, hundreds of men and women from college faculties offered themselves to the Government and were accepted for service under the Council of National Defense or elsewhere. Before the armistice was signed, the hundreds had increased to thousands, and this force of experts contributed services which could not have been duplicated, or in most cases even approached, by men and women without their knowledge and training. College students and alumni volunteered for all arms of the military service with a unanimity and devotion equaled only by the courage and efficiency with which they performed the duties assigned to them, whether in administrative departments in Washington, in the shipyards, in the munitions plants, or across the seas. With equal devotion and high purpose, with a fine self-restraint, other students remained at their studies that they might be ready when called to perform those important services which only men and women with the higher training could perform, and without which the services of the millions with less training might be of little or no avail.

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Within a few weeks after our entrance into the war the presidents or other responsible representatives of all of the more important colleges and universities met in Washington and offered their schools for whatever programme of service the Government might desire. Later, colleges and universities responded promptly and efficiently to the request of the War Department's Committee on Education and Special Training that they make provision for the training of scores of thousands of mechanics. Later still, they reconstructed or readjusted all their courses of study and all their plans to comply with the programme of this Committee for the Students' Army Training Corps. Now, with equally fine equanimity and patriotism, they have accepted disruption and the losses entailed by the discontinuance of this programme. Not only has the war tested the colleges, it has given them an unusual opportunity to study themselves, to discover their weaknesses, to discard outworn and outgrown practices, and to readjust themselves to the needs of the new era of democratic industrialism in which the demand for men and women of the highest and best types of training will be far greater than it has ever been in this or any other country. The world must be rebuilt and the process of reconstruction will not end in our generation. For this rebuilding American schools must furnish a very large proportion of the leaders both at home and abroad. To enable them to do this effectively they will need wise direction and generous support, but a people who have worked so wisely and given so liberally in the war for freedom and democracy surely will not fail in whatever may be necessary to secure that freedom and make that democracy most valuable to the world. It is quite certain that both state and National Governments will be much more ready to

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promote higher education in the future than they have been in the past.

Because of the great importance of bringing to the attention of the people at this time the services that the colleges rendered during the war and the still greater demands that will be made upon them for service in the immediate future, it is very fortunate that Dr. Kolbe has found time to prepare this book, which I am happy to have this opportunity heartily to commend.

PHILANDER P. CLAXTON.

THE COLLEGES
IN WAR TIME AND AFTER

CHAPTER I

THE AMERICAN COLLEGE BEFORE THE WAR

Conservative character of educational evolution—Stimulus of the last two decades—Revolutionary effect of the war—Educational progress conditioned by economic necessity—Distinction between education and the pursuit of knowledge—The place of the classics—The four-year college in pre-war controversy—Two great modifying forces—Material character of present-day civilization—Acceptance of higher education as a public function—Place of the privately endowed colleges nevertheless permanent—Analogy with the vanished private academy false—Probable modification under economic pressure.

It is very human for all of us to believe that we live in the age of eventual and final accomplishment. We can look back and appreciate the change of the past, but we conceive with difficulty the possibility of equal change in the future. This half comprehension veils the full significance of evolution in education as truly as in language, customs or religion. Education particularly has played the part of the typical conservative, even of the reactionary. The world had left it behind in the period of development following the Civil War, and only the last two decades have begun to witness its frantic struggles to resume its honorable place in the inevitable judgment of real values which humanity is always mercilessly passing. The necessity for this unseemly haste lay in the long inability of educated men to surmount the traditional—to realize that the world on which they lived was a moving, not a stationary, mass, and that it was carrying

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them inevitably into new surroundings and new conditions.

The first requisite of the educated man today is openness of mind, a desire to look forward as well as backward, and a willingness to admit that the progress of the educational system is not to be terminated abruptly with his own day. Speculation as to the future is perhaps profitless and even dangerous, but the attitude of mind which prompts it is by no means to be condemned. In the whole discussion the already visible manifestations of the great law of progress, dictated largely by the demand of economic conditions, can perhaps form our only safe guide in determining the future. Thus the mathematician, if he be given a part of a curve, can deduce therefrom its governing laws and plot the remaining part with accuracy. The education of any given period occupies the position of a mere point in time on the great curve of educational evolution. Our safest method, in normal times, is to examine with care the forces which have determined the character of this evolution, and to attempt to apply their workings, as we know them, to the future.

This normal progress, however, was suddenly interrupted by the entrance of the United States into the Great War. An unheard-of economic factor had appeared, influencing the whole course of humanity, and education must of necessity be remade. Probably the variation in the curve of educational progress occasioned by the present war will seem of but slight importance when measured on the scale of the centuries. To us, however, who live in these great times, the colleges of today seem infinitely removed from the

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colleges of that " yesterday " before the war, a yesterday which, the calendar tells us, lies but little more than one short year behind us, but which our mental and spiritual selves acknowledge as almost unrecognizably remote.

The law of educational progress has just been referred to as dependent principally upon economic conditions. It may seem somewhat materialistic to uphold a view of this sort. No doubt the spiritual in life, the growth of higher ethical conceptions, plays its own great part, yet no man can define clearly the relations between the spiritual and the physical, or tell in how far spiritual growth is dependent upon physical conditions. Certainly education from the earliest times has followed the leadership of economic necessity with almost slavish devotion. We should make here a clear distinction, and a necessary one, between education and the pursuit of knowledge. The latter has burned as a pure flame throughout the ages, undisturbed by any material consideration. Every century and every land has produced its scholars who learned for the love of learning alone. Great scientists, great humanists, great learners in every realm of knowledge, they have hewn their own path and felt the need of no other urge than the love of learning. Education, however, that is training as formalized into educational system and method is and has been a slave of opportunism, changing with protean adaptability to meet varying conditions of time and place. Thus, the early Middle Ages conceived education as ability to read and write the ancient languages, because this power gave to the clergy their exalted position above the masses, a tradition which has per-

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sisted in a measure until today. Even after the beginning of what we might call the era of exact science, the classical studies retained a certain economic value as a part of the recognized and necessary equipment of the teacher, the clergyman and the lawyer. Today their great cultural value is as undeniable as it ever was and classical study in itself as desirable, but *relatively* its value has fallen, since men can now meet economic conditions more efficiently with other weapons. Indeed, the study of the classics is regarded today almost as a luxury, since the time necessary for obtaining the complex educational equipment required in preparation for the present-day economic struggle has made them extremely difficult of acquirement by the modern student. Notwithstanding this, however, classical training is as keen a mental awakener as ever, and happy he who has had the time for such study. Besides, it still does meet the actual needs of a limited class of professional men and for them is as valuable a practical tool as mathematics for the scientist.

If we grant the guidance of education by economic necessity, it will prove interesting to judge some of the educational controversies of the pre-war period in the light of the past. Much discussion had been waged, for example, as to the ultimate fate of the American four-year college. Extremists who prophesied its utter dissolution were indignantly refuted by protagonists of the four-year college from every part of the land, who upheld it as the one typical American contribution to education and therefore immortal. Unfortunately such purely sentimental reasons have never been strong enough to prevail alone. The old

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private academy was perhaps equally an American contribution to education, and doubtless its sponsors loved it as well, but it has diminished almost to the vanishing point as public sentiment has increasingly assumed the duties of secondary education. The economic welfare of the land demanded a standardized and efficient system of education beyond the common school, and since the academies were neither numerous enough nor strong enough to satisfy this demand, the people themselves assumed the burden and with their infinitely greater resources soon occupied the entire field. No one should infer from this that the colleges are to meet the same fate. The two cases are by no means entirely parallel, and the results can scarcely be the same. Nevertheless, the colleges were facing, at the time of our entrance into war, two great forces whose influences must inevitably impress themselves deeply, namely, the pronouncedly material character of present-day civilization, and the awakening sense of responsibility among the people for higher education as a public function.

The privately endowed college was often the abode of conservatism, while the state university led the forefront of innovation. In certain sections of the country the conservative attitude best met the demands of the constituency. A New England college found, and may still find, a useful and honored field of activity by declaring unreservedly for the traditional type of college education, while an equally good college in certain parts of the Middle West might possibly have to close its doors for lack of students and support if it adopted a similar programme. In both cases economic conditions lie at the root of the

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matter. The New England institution had no particular claim to virtue as a defender of the faith; it was only meeting the demands made upon it by a well-to-do constituency which, to a degree, could afford the precious commodity, culture. The western institution, on the other hand, was born of a newer generation, and often found its main pride and strength in receiving the sons of working men whose resources allowed them to gain only what is most essential to active participation in life. Beyond question these students would be infinitely benefited mentally by a curriculum broadened by study of the civilizations of the past, but the civilization of the present had bound them with economic chains too tight to allow such pursuits at the risk of falling behind in the race. It seems a mistaken idea to attribute the reason for such materialistic conditions to the colleges. They were not the leaders, but the led. The great factor of the development of natural resources by modern science has had its way with education, not only in America, but even in Europe, the last stronghold of classicism.

The growing belief that higher education is a legitimate public function was the second strong force in remaking the American college. College founders fifty years ago were public benefactors and with justice were hailed as such. Nowadays the foundation of a new college is looked upon dubiously unless the endowment is enormous and the field of activity well defined. We have seen how the private academy was practically eliminated by the public high school. Extremists have argued that private colleges were to share the same fate at the hands of tax-supported

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institutions. Such an assumption was based on a hasty analogy and, let us hope, will never be realized. The American colleges will survive, not alone from sentimental reasons, but because they rest on many a sound financial foundation throughout the length and breadth of the land — because they are for the most part doing adequately and well what they should do, and because the flood of college students in times of peace could not possibly be cared for in any other way. In many respects the analogy between the private academy and the college fails. The academy was never so well established as is the college today; it lacked in most cases endowments, depending on tuition fees for its support. When population began to increase, nearly all communities, even the smallest, found it financially possible to establish some sort of public high school, and the academies were literally closed for lack of students. The case of the college is a different one. Great collegiate foundations, strong in wealth and long established position, are to be found in nearly every state. Large endowments render them able to bestow upon the student an education costing several times the amount of the tuition fee which he pays. The training and facilities offered are unsurpassed, the amount of actual expense to the student is not greatly in excess of that at the publicly supported institution, and, above all, the supply of students before the war seemed unlimited. An additional factor of safety lies in the fact that small communities, on account of the expense, cannot support collegiate institutions. While state institutions are to be found in most states, city colleges are still few in number and are scarcely practicable

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in smaller cities unless a suitable plant and some endowment is already at hand. Under such conditions the future of the college seems assured.

We may safely assume from what has just been presented that the private college is a permanent American institution. It is quite possible, however, that it may undergo modification. As already pointed out, the curriculum has undergone a rebirth as a result of economic conditions, dictated by the scientific development of natural resources and the resulting change in our mode of life, while the permanent effect of the Great War cannot yet be calculated. The encroachments of the high schools on one side and the graduate and professional schools on the other have often been remarked. The junior college seems to be increasing in popularity, and to the alarmist the first two years of the four-year college might appear to be in grave danger. Junior colleges, however, are not likely to spread far beyond the larger cities, and their threat is still remote. More immediate is the change which threatens the college from the so-called "combination-course" arrangement by which the senior academic year is omitted, or rather spent *in absentia* at the professional school. The temptation thus to save a year's time is great, and the economic necessity of entering productive activity at as early an age as possible presses mightily. As an actual fact most of us agree that the usual age of graduation from college is undesirably late for the beginning of the special training for life work. Whether this year should be cut from the college course or from an earlier point in the educational process is a debatable question. Re-

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ardless of the merits of this argument, the only means which have actually been found to accomplish the desired end are at the expense of the colleges, and unless primary and secondary education be compressed and intensified, the college is likely to lose an ever increasing number of students at the end of the junior year. Here too the attitude of the publicly supported institutions is one of the determining factors. While many private colleges for various reasons have shown unwillingness to adopt the "combination course," the state and municipal institutions have largely encouraged the plan, and the same favorable attitude has been shown by large universities, both publicly and privately supported, where both undergraduate and professional work can be taken in the same institution. The result of these various forces pressing in upon the college course may eventually reduce it by a year, or if this result be not wholly accomplished, we may conceivably have side by side a two- or three-year course for students preparing for professional work and the old four-year course in which will be entered those for whom graduation from college means the end of formal education. Economic conditions before the war were exerting an ever increasing pressure against the four-year college course as a preparation for professional work, and the arguments for the "combination" plan seemed to be gaining ground with every student who matriculated with the purpose of earning his way through college.

The status of the American college at the time of our entrance into the war is well expressed by the following quotation from *A Statistical Survey of*

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Illinois Colleges, issued by the Council of Church Boards of Education in 1917:

Undoubtedly the college is no longer the purely individual institution of two generations ago, but it has been swept into great educational currents which it cannot safely ignore. It is a part of an educational system, and in the last analysis it will stand or fall with the nature of its contribution and relationship to that system.

CHAPTER II

THE GROWTH OF A SOCIAL CONSCIOUSNESS

Social consciousness the greatest single force in recent educational evolution—Influence of the state universities—Influence of graduates' criticism—Function of municipal universities—Training for public service—Manifestations of coöperation between school and society—Expert public service of instructors—Extension teaching—Research in public affairs—Applied sociology and practical philanthropy—Institutional types modified by local demands—Resources available for war service.

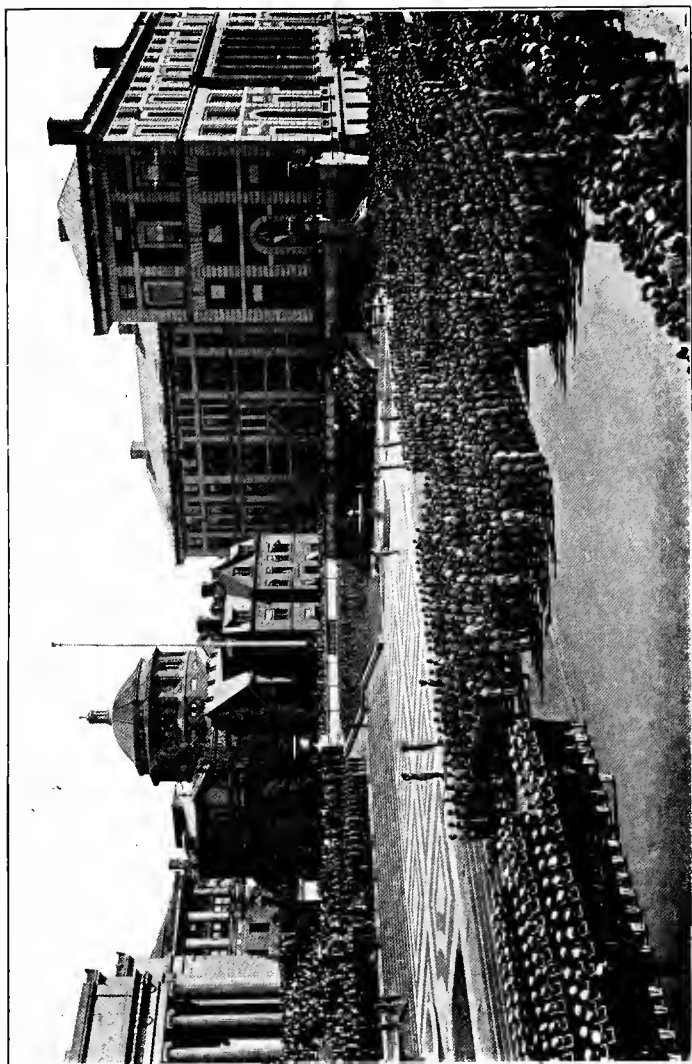
The development of the social consciousness in higher education has affected our colleges and universities as powerfully as any other single force in the last two decades. It has overturned precedent, remade courses of study, created new academic degrees, almost depopulated certain departments of learning and raised up new ones in their place. It has been condemned for its materialism and undue specialization, and praised for its true vision of life and its efficiency. Through all, its progress has been unchecked. Originating in a feeling of duty to society, it has controlled first the individual, then the department, and finally the policy of institutions themselves.

In this movement the state universities, supported by the people, have been leaders. Without the establishment of the principle of publicly supported higher education, it is doubtful whether the sense of public obligation would even now be fully awakened. A second powerful influence has come from the college graduate in the city. Living under the exacting in-

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dustrial and social conditions of modern urban life, he has reflected, mirrorlike, public opinion upon his *alma mater*, and the ray of his criticism has brilliantly illumined academic procedure. This criticism has been in most cases constructive in nature, and has helped to build up those various modern manifestations of education which have brought the higher institutions of today into touch with the everyday life. Through the slow course of centuries education has developed from the standpoint of a theological monopoly to that of a common possession sought by all, open to all, and benefiting all. The most tremendous steps have come within the past twenty years, and while the incentive has doubtless been the reflection of popular feeling from the outside, the initiative has come from within the colleges and universities themselves; administration and faculty members have awakened to the promptings of the social consciousness.

What are the developments in education which have brought about this new feeling of identity of interest between town and gown? They are so varied in nature as to be almost impossible of classification. The development of the state university has been the great achievement of higher education in the second half of the Nineteenth Century. The increasing success of the municipal university may conceivably rival this in the Twentieth Century. At the very least the municipal-university movement, however small its beginning, has been founded upon a realization of education's debt to society, and has played its part in the awakening of social consciousness in privately controlled urban institutions



COLUMBIA UNIVERSITY: INDUCTION CEREMONY OF THE STUDENTS' ARMY TRAINING CORPS, OCTOBER 1, 1918

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throughout the land. Ample witness to such an awakening is to be found in the establishment of such societies as the American Association of Urban Universities and the Society for the Promotion of Training for Public Service. In fact, "training for public service" is a slogan now heard in nearly every educational body and, possibly to greater effect, in the deliberations of many a civil-service commission. Upon this background of a public conscience awakened to the necessity for practical higher education, an attempt may be made to outline some of the directions which the movement toward coöperation between school and society had taken before the war.

The earliest forms of such coöperation were of a sporadic and unorganized nature, and lay with the individual faculty member rather than with the institutional administration. Such efforts took the form largely of various kinds of public service performed by instructors personally, usually service on public committees or in investigation which their own branches of learning peculiarly fitted them to perform. Such expert service has become more and more the province of college and university instructors, particularly in the various scientific departments. Today every large state university and many urban institutions are performing, through their faculties, valuable service for the public by giving expert scientific and technical advice on practical problems of general interest. As an example Columbia University may be considered. Provost William H. Carpenter¹ shows that Columbia faculty

¹ Address before the First National Conference on Universities and Public Service, New York, 1914.

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members are presidents of 24 different public organizations, vice-presidents of seven, and chairmen of boards or committees of 19 such societies. Members of the teaching staff are engaged in national, state and municipal service as appointed officers or members of committees and commissions in 23 different projects. This record of individual service by Columbia University faculty members is by no means complete.²

As the possibilities for valuable work in the dissemination of information and expert assistance beyond college walls became more apparent, there arose the movement, loosely called "extension work," which is today one of the strongest proofs of the existence of the aroused social consciousness. It required a complete revolution in academic feeling and precedent to bring home to the colleges the belief that their facilities were for extramural as well as for intramural use. Doubtless this feeling was not entirely a spontaneous product of some philanthropic strain in the institutions of learning themselves. Quite probably it was intensified in part at least by the knowledge on the part of tax-supported institutions that a broader service must be rendered in order that appropriations might increase. Whatever the original cause, the extension movement has become a leading factor in the modern stage of our educational evolution. Its manifestations are so varied as to render a full catalogue most difficult to compile.³

² For a full statement see *Columbia University Quarterly*, March, 1914.

³ For full discussion see Dean Louis E. Reber's report, "University Extension in the United States," U. S. Bureau of Education, Bulletin 19, 1914. Many valuable suggestions

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Generally speaking, extension work takes the form of classes and lectures given at such times and places as to be available to the adult population of the community. Lectures are generally offered to bodies of auditors requesting them, without attention to any particular sequence or schedule, while class work is usually conducted on the same plan as for regular students, credit being given in the same way. The time chosen is either late afternoon or evening, so that the worker may participate. Non-graduates of high schools are generally admitted if they are of mature age. Occasionally such courses are given away from the college campus in various centers such as public libraries, schools, public buildings, etc., and many state universities carry their work to the farthest confines of their states, not only by personal instruction, but also by correspondence. In some states information of nearly every sort may be obtained by the people from the state university, be it regarding agriculture, engineering, civic questions, cooking or sewing, the emphasis being put always on the practical side. Such service is supplemented by bulletins, bibliographies, study outlines and various scientific publications.

The political manifestation of the awakened social consciousness is to be found in the great interest in public affairs in the universities and in the various efforts made by departments of political science to coördinate class work with real life. Among the most interesting practical results of such efforts are the various state and municipal bureaus of reference

are to be found also in the *Proceedings of the First National University Extension Conference*, Madison, Wisconsin, 1915.

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or research, many of which are directly connected with educational institutions. Into these organizations students are placed to study the actual conditions of government, while the instructors in charge use the information obtained by this close contact with affairs to give lectures on public questions. These conditions promise to result in the establishment of courses and even schools intended to train students for the public service. They have already led to the organization in the larger cities of college extension classes for the education and improvement of those already in public service.

The most striking evidence of a conscience awakened to the service which education may render in sociological activities is the foundation by universities, or by academically trained persons, of schools of philanthropy, which have reacted again upon the academicism of college departments, so that now practical field work in sociology is common everywhere and a number of colleges even conduct settlement houses where students may get training in the alleviation of actual human suffering. Of a somewhat similar nature is the bond which exists in every center of modern medical training between hospitals and medical schools or colleges, since here too the old aloofness of theory from practice has vanished. Such connections have extended their influence beyond the academic enclosure in the form of public lectures and courses in health, sanitation, municipal chemistry, etc. On the educational side the college has reached out to embrace the work of practice teaching in lower schools of various grades, and departments of psychology are helping to pay the debt to society

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by service in the examination and treatment of defective children.

The acknowledgment and assumption of certain duties to society on the part of the colleges have brought about an inevitable variation from the old conception of an institution of higher learning. While fifty years ago good colleges differed but little in organization and curriculum, we now have a number of distinct types, developed usually in response to local needs. This attention to the requirements of society has brought about the foundation of medical and engineering schools in great cities where the need for men thus trained is greatest. The middle and western parts of the country have developed schools of agriculture and mining. The great sectional industries have left their mark on education, as, for example, in courses in the making of paper from wood pulp in New England, textile schools in Massachusetts, and courses in ceramics and the chemistry of rubber in Ohio. Prosaic business, too, has invaded the educational realms formerly sacred to the professions and to science, and courses or schools in business administration and its kindred topics are among the latest educational phenomena. The day of the 'real endeavor has come. Housekeeping in its scientific aspect is now a legitimate field of study for the college girl. College boys use the technical problems of city or shop as a text book. College professors are practical men, ready to use their knowledge for the benefit of their fellows.

In the midst of this great change, we stood, at the outbreak of the war, almost unseeing, failing to realize that we were part and parcel of as great a revolution

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in human thought as marked even the period of the Renaissance itself. Society was unconsciously responding to a condition which she herself had created. By her coöperation she was the direct cause of the pre-war tidal wave of educational activity in America. College graduates were being sought as never before, since they had built on a firmer basis. To the college student, life had offered its experience freely during his course, that he might be a more useful citizen in the future. Men of wealth had given unprecedented sums to establish and maintain institutions with the new vision. The National Government had thrown open to students in the District of Columbia its immense resources of laboratory material. States and cities maintained higher education on a magnificent scale. This was the world of higher education whose leaders could arise to the emergency of war and turn the powerful resources of the American college into the channels of patriotism.

CHAPTER III

THE FIRST REACTION TO THE DECLARATION OF WAR

Preparedness of the colleges — The demand for trained men — The colleges the only source of supply — Factors of disintegration — Public and official indifference — Enlistments from the student body — Waste of trained material — Patriotism the first reaction to the declaration of war — First war conference of the colleges — Its recommendations and accomplishment — Comparison with Canadian experience — College athletics in war time — College credit for enlistment in the armed forces and in agriculture — Patriotic commencements — College facilities pledged to the Government — Military training in colleges — Steadying down after initial disorganization.

The American declaration of war found a college world prepared. In most of the institutions the social forces long at work to popularize education had charged the academic atmosphere with a spirit of coöperation which everywhere was eagerly seeking the opportunity to render service. A number of larger universities had already begun to prepare — in fact, the doctrine of “preparedness” had become a watchword in educational circles as the danger of war loomed nearer. With its actual outbreak the universities saw the horizon of their pre-war opportunities for useful coöperation infinitely widened, and their whole activity suddenly elevated from the plane of every-day education to that of national defense. It was the country’s challenge to its higher educational system — a challenge which now demanded from the colleges a full justification of their existence.

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Probably no other factor has contributed so largely to a certain popular distrust of college training as the fact that its value can rarely be determined by practical and immediately discernible tests. Commerce and trade are in the habit of passing definite and final judgments on the ability of the individual to do his work. The factory executive, for example, is measured by the definite results of cost and production; he is either a success or a failure. The teacher, on the other hand, is only remotely subject to the reaction caused by the quality of his product. It is regrettably true that a poor teacher is often safer in his undisturbed tenure of office than an equally poor incumbent in many a less important activity. In reversal of this situation, the colleges were now to be called upon by the war to produce definite results under more exacting conditions than peace had ever imposed upon commerce and industry. Not merely fortunes and reputations were at stake, but human lives themselves and the existence of the Nation were to depend upon the result of college training. Strangely enough, this fact, while immediately apparent to the colleges themselves, was for a long time a matter of apparent indifference to the general public and even to the Government. Education in the United States had become so general a privilege that it was practically as free as air to him who cared to partake, and like the air it had come to be considered as a matter of course, the vital importance of which was forgotten. Trained men had always been at hand when needed; hence the thoughtless assumed that the supply was inexhaustible, and failed to realize that the college, the only source of supply, had acquired

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in time of war an importance far beyond its peacetime status.

All of the conditions just described must be kept in mind in order to interpret correctly the initial reactions of the colleges to the war. On the one hand was the undeniable necessity for a continued production of trained men — a necessity now more vital than ever before in times of peace. Diametrically opposed were a number of factors which worked directly for the disintegration of American higher education. First of these was the public and official indifference already mentioned, an indifference deepened by the all-absorbing interest in the national policy and the news from the front. Second was the splendid patriotism of the college student. With all the impetuosity of youth he threw himself into the emergency as he conceived it in terms of immediate action. However much and however justly we may deprecate the loss of so much potential trained material, however grave the effect of this loss may have been upon the conduct of the war, we cannot for an instant begrudge the praise due that high-minded patriotism which drove thousands of American college students out to fight their country's war at the first call for volunteers. As a third factor of disruption must be mentioned the attitude assumed by many college faculties and administrative officers at the beginning of the national crisis. Some were doubtless honestly carried away by the same wave of enthusiasm which depleted the student ranks. Others, seeing more clearly the greater service which educated men could give, were still loath to give themselves even the appearance of lack of patriotism by uttering

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a word of warning. As a result, college men enlisted by the thousands, and the potential supply of material for trained leadership was so diminished at the very source that only the inevitable lack destined to mark the coming years can bring a full realization of the loss suffered.

The declaration of war found the country without a definite military policy. This meant that for the initial period, at least, volunteering was the only possible means of raising an army. Small wonder it is that the high-spirited college man felt himself directly indicated by fate to fill the gap, quite regardless of age or stage of training. Two factors, however, served to rectify what might have been an even greater misfortune. Many college men put themselves into immediate line for the positions which they were best fitted to fill by entering the officers' training camps, and, at a much later period, the War Department, realizing the wastage of trained material, took earnest steps to recover from the ranks those men whose technical training, even though not complete, fitted them for greater service in special lines. With peculiar inconsistency, however, "drives" were carried on by many branches of the service to enlist college men in the ranks, quite regardless of their possible training and fitness for special callings. For a time it seemed probable that this policy would result in the entire depopulation of the colleges, particularly of those east of the Alleghany Mountains, where the student loss seems to have been greatest, but gradually the situation seemed somewhat to improve, a fact due to the fixing of the draft age at 21 and to the wise words of warn-

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ing issued by the President and those in high governmental positions.

It may be of interest to examine in a little more detail some of the particular effects caused in academic circles by the first few months of participation in the war. It can scarcely be said that surprise was one of the elements entering into the situation. The long series of German aggressions against American life and property on the high seas, culminating in the declaration of unrestricted submarine warfare, had fully prepared the minds of all for the inevitable result. Yet the actual declaration of war produced a shock which reacted perhaps even more violently by reason of the breaking of the long tension. With the stored-up energy of long months of expectation the colleges plunged into the maelstrom of war preparation. It is not at all surprising that some things were done in the first rush of patriotic endeavor which later and calmer reasoning proved to be both futile and unwise. Doubtless much of the confusion arose from the mistaken belief that a nation's system of higher education can be put upon a war basis overnight. The social consciousness, the sense of obligation, the desire to be of the utmost service, all of these were magnified a thousand times in the space of a few days' time. Even staid old colleges which had formerly put up rigid bars between themselves and the modern ideas of community obligation, which had lived for and within themselves and the purely cultural ideals for which they had long stood, awoke to the call of patriotism and introduced unheard of innovations in matters of courses and credits.

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The first reaction of the American college faculty was one of all-sacrificing patriotism, a feeling which has steadily grown and deepened and flowered into accomplishment in a hundred useful endeavors. At the same time the administrative officers of higher education throughout the land realized from the beginning the prime importance of higher education as a preparation for war needs and the necessity of some measures to insure its continuance. Concerted action seemed highly desirable, but the lack of any comprehensive national organization of all types of universities and colleges was a bar to the calling of a nationwide meeting. During March, 1917, however, the Council of National Defense was permanently organized, and also its Advisory Commission, whose Committee on Science, Engineering and Education, under the chairmanship of President Hollis Godfrey of Drexel Institute, now stepped into the breach, and summoned on May 5 the first general college meeting of the war period. This meeting, held in Continental Hall in Washington, was broadly representative, being attended by more than 150 representatives of the leading educational interests of the country. It is perhaps fair to say that these visitors came to Washington with two questions uppermost in their minds: first, "What can we do immediately for our country?" and second, "How can we operate our colleges as a national asset during the war period?" These feelings are indicated in the principles and resolutions unanimously adopted by the conference, which on account of their significance are here quoted in full, since they portray so accurately the conditions of the period:

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PREAMBLE

In the supreme crisis that confronts the Nation the colleges and universities of America have the single-minded thought and desire to summon to the country's service every resource at their command, to offer to the Nation their full strength without reservation, and to consecrate their every power to the high task of securing for all mankind those ideas and ideals that gave them birth and out of which have grown their most precious traditions.

In order that such service may be most intelligently developed and applied, the following declaration of principles is respectfully suggested.

STATEMENT OF PRINCIPLES

It is our judgment that our colleges and universities should so organize their work that in all directions they may be of the greatest possible usefulness to the country in its present crisis.

We therefore believe, first, that all young men below the age of liability to the selective draft and those not recommended for special service, who can avail themselves of the opportunities offered by our colleges, should be urged so to do in order that they may be able to render the most effective service, both during the full period of the war and in the trying times which will follow its close.

We believe, second, that all colleges and universities should so modify their calendars and curricula as will most fully subserve the present needs of the Nation and utilize most profitably the time of the students and the institutional plant, force, and equipment. With this end in view, we suggest that, as an emergency measure, the colleges consider the advisability of dividing the college year into four quarters of approximately 12 weeks each, and that, where necessary, courses be repeated at least once a year so that the college course may be best adapted to the needs of food production.

We believe, third, that in view of the supreme importance of applied science in the present war, students pursuing technical courses, such as medicine, agriculture, and engi-

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neering, are rendering, or are to render, through the continuance of their training, services more valuable and efficient than if they were to enroll in military or naval service at once.

We believe, fourth, that the Government should provide or encourage military training for all young men in college by retired officers of the Army and National Guard or by other persons competent to give military instruction, and that the colleges should include as a part of their course of study, teaching in military science, in accordance with the provisions of the National Defense Act of June, 1916.

We believe, fifth, that the Bureau of Education of the Department of the Interior and the States Relations Service of the Department of Agriculture, with the coöperation of the committee on science, engineering and education of the advisory commission of the Council of National Defense, should be the medium of communication between the Federal departments and the higher educational institutions of the country.

Finally, we believe that an educational responsibility rests on the institutions of higher learning to disseminate correct information concerning the issues involved in the war and to interpret its meaning.

RESOLUTIONS RECOMMENDED FOR ADOPTION

1. *Resolved*, That we request the advisory commission to recommend to the Council of National Defense that it approve the plan of developing and issuing at once through the Bureau of Education of the Department of the Interior and the States Relations Service of the Department of Agriculture, with the advice of the education section of the committee on science, engineering, and education of the advisory commission of the Council of the National Defense, a statement of a comprehensive policy of coöperation between the Government and the universities, colleges and other schools which will make for the most effective use of these institutions, throughout the duration of the war. The statement should be accompanied by suggestions to be as explicit as possible in regard to

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1. The plans of the Government in all its departments for the prosecution of the war, so far as they concern the colleges and universities.

2. The best methods developed by the educational institutions of the allied countries to meet war conditions.

3. The ways in which the educational institutions of the country can best organize to fulfill the needs of the Government.

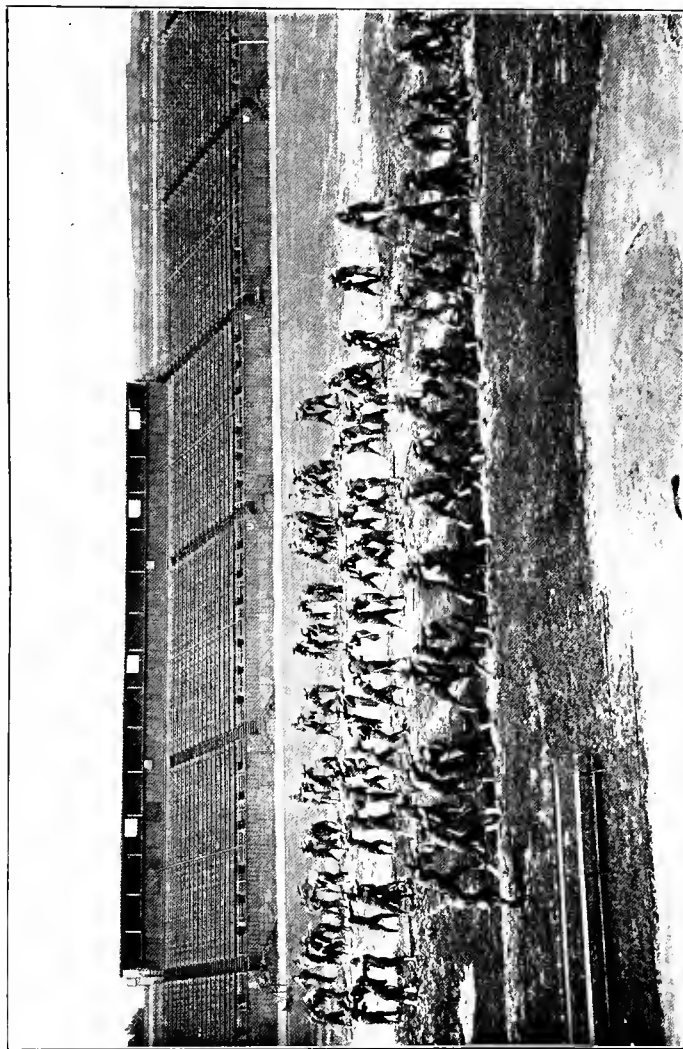
2. *Resolved*, That we request the advisory commission to recommend to the Council of National Defense that it approve a plan whereby the Bureau of Education of the Department of the Interior shall, after consultation with Federal departments and educational officers throughout the country, keep the educational institutions informed of the needs for technical, military, and general training which the schools and colleges may wisely undertake to fulfill and that the States Relations Service of the Department of Agriculture take similar action as regards agricultural needs. Both these actions to be taken in consultation with the education section of the committee on science, engineering and education.

3. *Resolved*, That we request the advisory commission to recommend to the Council of National Defense that it request the Bureau of Education of the Department of the Interior and the States Relations Service of the Department of Agriculture to bring together from time to time, as may seem expedient, groups of educational officers with the committee on education of the advisory commission for the consideration of the best methods of maintaining, adjusting, and strengthening the educational system of the country in order to meet the emergencies of the war and to plan for the period following the war.

4. *Resolved*, That nothing in these resolutions shall be construed as advising any change in the legal or administrative relations existing between the Department of Agriculture and the agricultural colleges.

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At the conclusion of the meeting a strong protest was voiced by some of the members present against adjourning with nothing more accomplished than the passage of a mere set of resolutions. Such a protest was typical of the impatience of the American college spirit of that period to be allowed to take part in the actual performance of war tasks. It ignored the necessity for a unification of interest and for such a general discussion as was accomplished by an inclusive preliminary meeting of the sort called by President Godfrey. Had the meeting served no other purpose, it would have justified itself for three reasons: it gave the college men of the country an opportunity to hear an inspiring message of Secretary of War Baker, personally delivered, urging the imperative necessity for the continuance of higher education; it gave rise to much profitable interchange of individual ideas; and, finally, it served to fix in definite form the immediate points to be worked for. Had the college men of the country stopped here, the meeting would have been profitless. As a matter of fact, it served as a starting point for a number of individual efforts by smaller groups, and it is significant that small groups have succeeded since that time in accomplishing many of the aims defined at the original meeting. Let us summarize this accomplishment briefly. The principle that college students should remain in college until the completion of their course has been endorsed by the highest Government officials, subject, of course, to the regulations of the selective draft. College calendars and curricula have actually been modified as suggested, although only a few institutions had adopted the



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four-quarter plan before the inauguration of the Students' Army Training Corps. Technical and medical students have been sent back to their schools to complete their work under the plan for the Engineer Reserve Corps, the Medical Reserve Corps, etc. A comprehensive plan of governmental military training in college has been adopted. And finally, a plan of communication between colleges and the Government has been worked out, not on the basis suggested by the meeting, but through the creation of the War Department's Committee on Education and Special Training. In view of all this, while the immediate accomplishment of the meeting seemed at the time unimportant, the academic world owes President Godfrey and his committee a debt of deepest gratitude for starting a movement which has been of such inestimable value to higher education in America.

On July 3 and 4, 1917, a meeting was held at Washington between the Education Section of the Committee on Engineering and Education and a commission representing the universities of Canada. It is of interest to us here chiefly for purposes of comparison between the first war reaction in the United States and that in Canada, as described by the Canadian commission. A full description of the meeting may be found in Higher Education Circular, No. 3, 1917, of the United States Bureau of Education. For our present purpose a mere synopsis of the Canadian educators' statements is sufficient for comparison. The Canadian universities, we are told, suffered great loss of undergraduates and instructors at the beginning of the war. No effort was made to accord special treatment to university men nor to

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keep the institutions themselves together. Later, officers' training corps were established, for which work college credit was given. Experience showed that undergraduates should remain at least two years in college before enlistment. For collegiate military training few army officers were available, and as a matter of fact, regular faculty members proved more successful. Some universities lost as much as 70 per cent. of their student body. Members of the teaching staff in Government service received part salary, so that no financial sacrifice is incurred. University calendars have been modified and summer sessions added, particularly in medical schools. Medical students were sent back to finish their course. Agricultural students were encouraged to do farm work rather than enlist. Students in the arts courses were sometimes allowed for military service as much as one year's credit toward the degree. A sharper line has been drawn between the "idealistic" and the "practical" groups of studies. Laboratories have been used for war research. The sum of \$100,000 has been made available to the Canadian Advisory Council by the Government and is being used in part for the establishment of fellowships and scholarships. All of these conditions find their parallel in the United States, but on account of the early adoption of the selective draft system, the loss in undergraduate students in this country has not been so great.

It is interesting to note the immediate effect of our declaration of war upon the popular mind. The American people, perhaps especially the college world, felt at once a burden of obligation "to do something."

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Unfortunately, but few persons knew exactly just what that "something" was. The colleges very generally interpreted it to mean a departure from all the channels of their usual procedure. Sometimes, unfortunately, these departures had as their only practical value the effect of soothing the academic or official conscience with a feeling of "something" done for the war. Typical was the unjustified wave of opposition to intercollegiate athletics which swept over the country. Some institutions, it is true, were actually forced by lack of athletic candidates to cancel schedules. Others cancelled them even without this excuse, and some used the rather questionable subterfuge of putting so-called "informal" teams into the field, thus avoiding whatever criticism might be directed against official participation, and incidentally softening possible defeat at the hands of other colleges which, although equally affected by the war, had lacked the prudence to adopt a similar course. The majority of schools, however, continued their athletic activities, wisely realizing their value for war preparation as long-as any men were left to participate.

Naturally a great wave of college men enlisted at the declaration of war, many going soon after to the officers' training camps. In most cases college credit for the balance of the semester was allowed these men in the Liberal Arts colleges, and everywhere seniors of this type were given diplomas in June. At the same time came the cry for increased agricultural production. Agricultural schools were everywhere dismissed in the early spring, and in one of the states at least the Governor ordered every male student in

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the State University and in the state colleges to cease his college work and enter productive, preferably agricultural, employment a number of weeks before the normal close of the school year. It goes without saying that the second part of the order could not be impartially applied, and in many cases students wasted time during this enforced vacation. Thousands of college men, however, did enter upon farm work, and in most cases received college credit therefor, a highly patriotic procedure, though generally felt to be somewhat questionable academically, except for agricultural-college students.

Commencements, too, offered a good opportunity for manifestations of patriotic spirit. In many cases the regular ceremonies were greatly simplified and in a few instances dropped altogether. Other colleges, notably Princeton, made their commencements occasions for great patriotic rallies. President Hibben's letter to all Princeton alumni, published in the *Princeton Alumni Weekly* for May 9, 1917, breathes an admirable spirit and is worthy of reproduction as an instance of thoughtful patriotism:

It is hoped that Saturday of Commencement Week, our Alumni Day, may prove a memorable occasion for all Princeton men. In the midst of these troublous times we have not the disposition to celebrate this day in the traditional manner. The occasion, however, affords us an opportunity of expressing our devotion not merely to Princeton but to our country as well. Our Commencement season has been immemorially a time in which our love for our Alma Mater has drawn us irresistably back to the old scenes and the old friends of past years. It is not a difficult thing, indeed it is a most natural thing, that we now merge our loyalty to Princeton with our loyalty to the Nation.

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We are planning a program for Saturday afternoon and evening which will afford an opportunity for the expression of our patriotic zeal and of our readiness as Princeton men to undergo any hardship or sacrifice for the sake of our dearly beloved land. I hope that not only the classes holding special sessions, but all the Alumni, old and young, may return upon this patriotic pilgrimage.

Faithfully yours,

JOHN GRIER HIBBEN.

From all parts of the country the presidents and faculties of colleges and universities sent to the President of the United States their expressions of loyalty, and offered to the Government plants and equipment aggregating millions of dollars in value. Typical is the following quotation from the letter of President William O. Thompson of the Ohio State University (quoted from the *Ohio State University Monthly* for April, 1917): "The faculty and trustees pledge you their loyal support in your leadership. The resources of the University in scientific and research laboratories and in men will be at your command." It is pleasant to record that such offers were not merely empty phrases but were soon made good by surrender of plant and equipment for Government use throughout the colleges of the country.

There was at first an unfortunate tendency to enlistments by immature students and, in some institutions, a tendency to go to uncalled-for lengths in giving up or unduly modifying the regular work of the colleges in favor of too much military drill. The general unrest and disorganization in all colleges during the first spring may be illustrated by two quotations, again from the *Princeton Alumni Weekly*. The first statement, on "The Effect of the War on

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the Campus," is contained in the number for April 18, 1917:

Every day Princeton becomes less an academic college and more a school of war. Every week the importance of regular college courses gives way to that of military training courses. Nearly one-quarter of the undergraduates have already given up all academic work and the other three-quarters are just awaiting a favorable opportunity to join them. . . . With approximately twenty-five per cent. of the students gone from the regular class rooms, every course in college has been affected by the withdrawals and the seventy-five per cent. remaining are thinking more about when they will stop than they are about what they are supposed to be studying. . . . They feel that it is their duty to be doing their utmost toward preparing themselves for active military service and that they are wasting time doing academic work when full credit can be obtained for it by simply giving themselves to the greater duty. . . . Since the Seniors who enlist will get their diplomas in June, those who continue their regular work feel that they are going through a mere form for the purpose of getting something which they might have by a not less arduous but a more entertaining and more exciting route.

Again we read (May 16, 1917) :

Students who entered these intensive training squads, which involved thirty hours of scheduled work a week, were naturally forced to give up their regular studies during this period, and the men, who were merely drilling were allowed to drop one course. This resulted in much confusion. The demands for other forms of service . . . called many men from Princeton, so that the second term of the year 1916-1917 will be remembered as one of constant shifts and changes on the part of both faculty and students in their efforts to maintain some sort of adjustment to the shifting situation.

In a later portion of the same article President

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Hibben announces the continuation of the academic work for the coming year and states:

Opportunities for military training will be given, but this will no longer be of such a nature that it will be accepted as equivalent to the whole or a part of the students' academic work. All who desire to take such training will be expected to engage in it in place of their ordinary sports or physical exercise.

The editorial comment which immediately follows shows that even then a saner view was beginning to prevail. It is here quoted in part as typical of the second reaction of the American college in the spring of 1917:

This means that there will be no interruption of regular work and all students who return in the fall will give their undivided attention during class and study periods to academic duties. . . . The truly soldierly course for next year's Princeton student will be to give himself wholeheartedly to the daily task of education, remembering that "Peace, too, hath her heroes like Fame and Fortune."

Two weeks later the *Weekly* remarks:

Princeton has been such a veritable hot-bed of patriotism and mental unbalance since the last of February that the undergraduates who are survivors are just beginning to get something like normal again. There is a growing feeling about the campus that, although serving one's country, if it is *serving*, is one of the greatest human privileges, to "sit tight" requires as much courage as running off to one thing or another in an effort to get into the national service.

Professor Theodore W. Hunt, Princeton '65, gives interesting testimony to the fact that the disorganization of college work was perhaps greater during the spring of 1917 than even during the Civil War. In

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a letter to the *Alumni Weekly* (May 23, 1917) he says, in part:

Another striking feature of the era [the Civil War period] was that the orderly procedure of college exercises was not materially affected during the four years of war . . . no general or protracted suspension of college work, no such nervous tension existing as that which we have noticed in these tragic days of international strife. . . . From time to time, as the war went on, the students were subject to military drill, as they are now, and yet it seemed to fit in with the regular collegiate activities and in no sense to dominate them.

At Oberlin College the Civil War reactions seem to have been somewhat similar to those of the present day, that is, an initial disorganization was followed by a steadying down process, a realization of the primary value of education, although the education of the Civil War period was by no means so directly linked up with the processes of carrying on war as is the education of today. In the *Oberlin Alumni Magazine* for June, 1917, appears the following article based on Fairchild's *History of Oberlin*:

What was the effect on the attendance of Oberlin in the trying times of the Civil War? President Fairchild notes that the enrollment fell off about one-third, but the decrease in the number of men was some two-fifths. During the earlier part of the time it was hard to keep interest in the college work; the North was making every effort to put men in the field and the war news was engrossing. But as the war went on they learned to be steadier. They realized that men of training were essential after the war, and that for the army itself an education was valuable. Remarkable as it seems, in the last two years of a bitterly fought war, the college, which had sent so many men and was so vitally interested in the issues, actually increased its attendance of men as well as of women.

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Observing the college situation a little more than a year after the American declaration of war, we may summarize as follows. The initial disorganization of the colleges had been to some extent overcome. Considerable progress had been made in coöperative activities between the colleges and the government. Unfortunately, however, the inevitable loss of students had seriously embarrassed the colleges financially, and only the strictest economy and maximum adaptation to war conditions could save them in the event of long continued hostilities.

CHAPTER IV

NATIONAL MOVEMENTS TOWARDS EDUCATIONAL CO-OPERATION

The initiative taken by the colleges — Air Service ground schools created — The Intercollegiate Intelligence Bureau — Committee on Engineering and Education of the Council of National Defense — President Wilson's attitude — Its effect on college policy — War Department's Committee on Classification of Personnel in the Army — First steps towards organizing technical training — Federal Board for Vocational Education — War Department Committee on Education and Special Training — Situation at the end of 1917 — Emergency Council on Education — National Research Council — Other organizations.

The initiative in evolving plans for coöperation between the educational system of the country and the Government in the war crisis seems to have been almost entirely with the colleges. It is interesting, even though unprofitable, to conjecture just what the state of affairs would have been had the college men of the country awaited quietly the Nation's call to duty, instead of anticipating that call by proffers of service. In nearly every institution in the country, apparently, even before the President's declaration of war, an inventory of resources was taking place. While international policy forbade actual war preparations within a nation still nominally at peace, the trend of events was all too plainly toward war to leave much doubt as to the eventual outcome. Germany's declaration of unrestricted submarine warfare was the final event which showed war as unavoidable, and from that time the

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colleges of the land began to prepare themselves for what was to come. In many instances, however, the reaction was one of unwarranted gloom. The uncertainty of a situation fraught with the most serious possibilities caused many college men to feel that a general closing of colleges was inevitable during the war period. Many made the mistake of contenting themselves with a state of quiescent readiness for this calamity. Such a result seemed also to be expected by a large part of the public, and in some cases definite statements by college authorities were necessary to assure students and matriculants that certain institutions were to open as usual in the fall of 1917. Fortunately, there were leaders in all parts of the country who saw at once the possibilities for higher-educational war service. The May meeting in Washington, called by President Godfrey, served to dispel some of the uncertainty, and the personal assurance of Secretary Baker that the colleges must continue to operate as a distinct asset in time of war did much to restore confidence in the future.

In one instance, worthy of mention, the usual procedure was reversed and a branch of the Government, the Air Service, took the initiative in securing college coöperation, albeit through the mediation of a body partly academic in composition, the National Advisory Committee for Aeronautics. At the outbreak of the war the United States was practically without aviation facilities or experience in the intricate process of training military aviators. The Signal Corps turned immediately to the British system of training, as exemplified at the Canadian flying fields at Toronto, as a model for its own development, and

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on April 23, 1917, a complete programme for the adoption of the Canadian system was laid down in a conference in Washington between the National Advisory Committee for Aeronautics and officers of the Signal Corps. A week later, on April 30, the National Advisory Committee met in conference representatives of the six scientific schools chosen to carry on the work—Massachusetts Institute of Technology, Cornell University, Ohio State University, University of Illinois, University of Texas, and University of California. The plan proposed was the establishment of cadet courses for the preliminary training of aviators in each institution, under military regulations but with all the facilities and the teaching staffs of the colleges available at a fair rate of compensation. The six institutions at once agreed to the proposal, and on May 7 three representatives from each of them met at Toronto Professor Hiram Bingham of Yale, who had been delegated to organize the primary training on a comprehensive scale. Here they made as complete a study of the British training system as was possible in the time available, and on May 10 Professor Bingham reported to the Signal Corps that he could graduate the first class of 120 men from American schools on July 14, after an eight weeks' course. The plan was formally approved by the Secretary of War on May 19, and the six schools opened two days later with no definite curriculum other than instructions to give three weeks of intensive military training while the other details were being prepared. Thus the "ground schools" came into being as the first step in the training of American aviators, in which college co-



COLUMBIA UNIVERSITY U. S. AIR SERVICE RADIO SCHOOL; BUZZER PRACTICE, RECEIVING AND SENDING IN CODE

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operation was enlisted on a larger and larger scale as time went on.¹ The six ground schools provided almost at once for 200 men a week, and on July 14 the first class was graduated as promised, except that it had 147 instead of 120 members.

Even before the declaration of war, it became evident to many that the task of selecting the trained man for his place in the scheme of national defense was to be an enormously important one. The Government had at that time no central machinery for the purpose, each branch of the military service operating independently to fill its own needs. The call for expert service in civilian capacities was as yet entirely unthought of on the great scale which soon proved necessary. At this point great credit must be given to Dean William McClellan of the Wharton School of the University of Pennsylvania, who, nearly two months before the actual declaration of war, evolved a plan by which a central agency was established at Washington to facilitate the ready placement of trained college men (chiefly graduates) in the Government service. Dean McClellan's organization was supported by private funds and by contributions from various colleges. Each college in the country was asked to appoint an adjutant, to whom immediate notification was sent from the central office of the organization, known as the Inter-collegiate Intelligence Bureau, regarding Government need for trained men. Each adjutant transmitted the calls to alumni of his institution particularly fitted

¹ For a complete description of the coöperation of the colleges in this element of military training see, in this series, Arthur Sweetser, *The American Air Service*.

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for the work in question, and these made application through the Bureau to the branch of the service concerned. For more than a year the Bureau rendered excellent service. Finally, in March, 1918, at the request of the Committee on Classification of Personnel, which had been organized meanwhile in the War Department under the Adjutant-General, the work of the Bureau for men was turned over to a division of the Committee known as the War Service Exchange of the War Department, while the Bureau's work for women was cared for by the Women's Collegiate Section of the Department of Labor. The Intercollegiate Intelligence Bureau furnishes a striking example of the initiation by college men of an unofficial plan which was deemed worthy to be incorporated as an official Government war-time function. The accomplishment of the Bureau during its year of existence is best told in Dean McClellan's own words as they appear in a letter of March 6, 1918, addressed to Secretary of War Baker:

On February 10, 1917, this Bureau was organized in Washington. In addressing the delegates at that time you said in part:

"The formation of this organization seems to me to be a gift to the Nation, a gift of preparedness, alike for service in war and in peace, and I have been tremendously stimulated and encouraged by receiving your offer of help."

We organized with a view of bringing the educational institutions and the technical and professional men of the country into as close and useful a contact as possible with the Government and of making them thoroughly useful and efficient for the Nation at this time.

We have spent a busy, and, we believe, a useful year in trying to fulfill our obligations and living up to our ideals.

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We have organized branches at about two hundred colleges, technical and agricultural schools throughout the country and city committees, composed of representative graduates, in the larger centers of the Nation. Using entirely a decentralized system and responding to the definite calls made upon them by our Division of Service Calls at our office here, these branches have had the satisfaction of knowing that about four thousand of the men and women nominated by them have been appointed to positions of responsibility in the service of the National Government. All of these positions called for highly trained specialists in professional and technical fields. Roughly speaking, about 50 per cent. of them represented commissions in the Army or Navy. Every nomination accepted and also the many nominations made in good faith which did not result in appointments, were thoroughly investigated before being sent in both by our branches and by us and we have the satisfaction of sincerely believing that no finer body of loyal citizens can be found than the men who are now serving the country and who found their proper places through the agency of this Bureau.

Chronologically it is safe to say that the Inter-collegiate Intelligence Bureau represented the first attempt made to utilize the product of the American college for war purposes on a national scale. As such it is of deepest significance, and the final adoption of its basic idea as a governmental function is a fine tribute to the farsightedness of its founders and the worth of education in the national crisis.

The final organization of the Council of National Defense on March 3, 1917, brought with it the first nation-wide effort to organize education in its broadest sense for the war emergency. The first Annual Report of the Council states (page 8). "In a broad sense the Council has endeavored to make available to the United States the best thought and effort of

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American industrial and professional life for the successful prosecution of the war." Together with a multiplicity of other functions not incomprehensible in view of this stupendous task, the Council organized as a part of its Advisory Commission a Committee on Engineering and Education, "to make available to the Government in the most effective possible form the service of the engineering and educational professions." This committee, headed by President Hollis Godfrey of Drexel Institute, called during the early part of May the first general college conference on the war, described in detail in the preceding chapter. Thus it may be hailed as the pioneer in the field of the general organization of college resources, just as the Intercollegiate Intelligence Bureau should be credited with the first steps to utilize the college product.

At the close of this initial meeting the chairman appointed a permanent committee to serve as a special section of the Committee on Engineering and Education. Its members were:

HOLLIS GODFREY, member of the Advisory Commission of the Council of National Defense, President of Drexel Institute, chairman

HENRY E. CRAMPTON, professor in Columbia University, vice-chairman

FREDERICK C. FERRY, Deau of Williams College, secretary
SAMUEL P. CAPEN, Specialist in Higher Education in the United States Bureau of Education, executive secretary

EDWIN A. ALDERMAN, President of the University of Virginia

GUY POTTER BENTON, President of the University of Vermont

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KENYON L. BUTTERFIELD, President of the Massachusetts Agricultural College.

AUGUSTUS S. DOWNING, Assistant Commissioner for Higher Education of the University of the State of New York

WILSON FARRAND, Headmaster of Newark Academy

GUY STANTON FORD, Director of the Division of Civil and Educational Coöperation of the Committee on Public Information

FRANK J. GOODNOW, President of the Johns Hopkins University

EDWARD K. GRAHAM, President of the University of North Carolina

CHARLES S. HOWE, President of Case School of Applied Science

HARRY PRATT JUDSON, President of the University of Chicago

A. LAWRENCE LOWELL, President of Harvard University

FRANK L. McVEY, President of the University of Kentucky

ALEXANDER MEIKLEJOHN, President of Amherst College

JOSEPH A. MULRY, President of Fordham University

JOHN S. NOLLEN, President of Lake Forest College

RAYMOND A. PEARSON, President of the Iowa State College of Agriculture and Mechanic Arts

WINTHROP E. STONE, President of Purdue University

HENRY SUZZALLO, President of the University of Washington

WILLIAM O. THOMPSON, President of the Ohio State University

ROBT. E. VINSON, President of the University of Texas

With so distinguished and representative a membership this Committee might seem to have been the ideal body for centralizing and coördinating college war effort in the United States. As a matter of fact, its record of achievement in this respect is not imposing, although its membership includes several men

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whose efforts as individuals or in other capacities have done much to define the duty of the colleges in the war. Efforts were made to establish the Committee as a clearing house for college affairs at Washington, but with indifferent success. It addressed an inquiry to the War Department regarding the introduction of military training in colleges on a plan more comprehensive than that already in use in a few institutions, but no satisfactory results were obtained. In July, 1917, as already mentioned, a conference was held at Washington between the Education Section and a commission representing the universities of Canada, and during the fall of 1917 another general meeting was held in Philadelphia, but with this effort the more generalized activities of the Committee seem to have slackened. The reasons for the gradual decline in accomplishment are not hard to conjecture. They seem to have been too great diffuseness of programme, lack of financial resources, and complexity of organization and interest. The Committee, while evidently typical of the initial and quickly passing phase of our war preparation, nevertheless served its purpose admirably. It aroused college men to the possibilities which existed for them in the war situation, and served as the starting point for much valuable specialized effort and accomplishment.

The year 1917 may rightly be termed the year of educational adjustment. It is interesting to note in retrospect the currents of endeavor which ebbed and flowed in the national capital during the first nine months of the war. Probably no more representative body of college men ever assembled than that which gathered at the call of the Committee on Engi-

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neering, and Education early in May. The gathering represented the intense desire of trained America to render its utmost service. While its effects were not immediately evident, it served to put many educators into closer touch with governmental needs and activities. It served also to arouse the heads of the Nation to the importance of the colleges for war service.

The keynote was sounded by Secretary Baker at the meeting itself. During the ensuing summer both the Secretary of the Interior and the Commissioner of Education issued warnings against the threatened depopulation of the colleges,¹ while Secretary Baker again summed up the situation as follows:² "The most useful thing a high-school boy can do is to finish his course because the Nation in the next few years will need all the trained men it can get." The most significant statement, however, was issued by President Wilson himself, in response to a request from Secretary Lane. Herein he had the courage to go flatly on record as advocating the continuance in college of all students under the draft age, a standpoint which had previously been urged by the Commissioner of Education but not formally endorsed by the Administration. The President's letter follows:

THE WHITE HOUSE,
WASHINGTON, 20 July, 1917.

MY DEAR MR. SECRETARY:

The question which you have brought to my attention is of the very greatest moment. It would, as you suggest, seriously impair America's prospects of success in this war

¹ See U. S. Bureau of Education, Higher Education Circular No. 4, 1917.

² New York *Evening Sun*, August 24, 1917.

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if the supply of highly trained men were unnecessarily diminished. There will be need for a larger number of persons expert in the various fields of applied science than ever before. Such persons will be needed both during the war and after its close. I therefore have no hesitation in urging colleges and technical schools to endeavor to maintain their courses as far as possible on the usual basis. There will be many young men from these institutions who will serve in the armed forces of the country. Those who fall below the age of selective conscription and who do not enlist may feel that by pursuing their courses with earnestness and diligence they also are preparing themselves for valuable service to the Nation. I would particularly urge upon the young people who are leaving our high schools that as many of them as can do so avail themselves this year of the opportunities offered by the colleges and technical schools, to the end that the country may not lack an adequate supply of trained men and women.

Cordially and sincerely yours,

HON. FRANKLIN K. LANE,

WOODROW WILSON.

Secretary of the Interior.

This letter is of immense importance in the development of college policy during the year 1917. Together with the adoption of the selective draft, it defined clearly the status of the college during the war period as a training place for young men under twenty-one years of age, and called especial attention to the necessity of preparation in the science of war. While many institutions faced a largely decreased student enrollment in the fall of the year, the events of the summer had served to clarify the academic atmosphere to a large extent. Aside from certain still unsolved financial troubles, the colleges had begun to adapt themselves to war conditions.

It is not the purpose of this chapter to discuss in

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detail the formation of the Medical and, later, the Engineers' Reserve Corps.³ Both belong to the latter half of the year 1917 and mark the achievements of small groups of men. The Committee on Engineering and Education of the Advisory Commission of the Council of National Defense was still active through its subcommittees, and deserves much credit for the important accomplishments of this period. A new force, however, had appeared in the form of the recently organized War Department Committee on Classification of Personnel in the Army, which had devised a system for the classifying of registrants subject to the draft on the basis of occupation, experience and education. The organization of this work and the acceptance by the War Department of its underlying principles are due to the energy of Professor Walter Dill Scott of Northwestern University. Professor Scott coöperated freely with the Committee on Engineering Education, a subdivision of the Committee on Engineering and Education of the Council of National Defense, and was instrumental in urging upon the War Department the importance of technical education in winning the war. Secretary Baker, always a firm friend of education, had emphasized from the beginning the two main functions of the college in war — first, to train officers, and second, to train scientists. Officially, however, the War Department had failed to recognize the value of educational institutions in training technical personnel for the Army. The first step toward the much desired official relation was finally

³ The formation of the Enlisted Reserve is described in Chapter X.

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taken when the War Department accepted a recommendation of the Committee on Engineering Education to the effect that an engineer familiar with the equipment and capacity of higher technical institutions be commissioned in the Army and assigned the task of coördinating the needs of the Army for technically trained men with existing educational facilities. On August 31, 1917, Secretary Baker detailed Captain Lane of the General Staff Corps to work with the Committee on Engineering Education, headed by Dean F. L. Bishop of the University of Pittsburgh. This work was in direct alignment with that initiated by Professor Scott's Committee on the Classification of Personnel, with the added function of not only finding and classifying, but also of training men for special service. Unfortunately, Captain Lane, who had made an excellent beginning of his work, was transferred after a month's time. He was succeeded by Major McCoach. Meanwhile, during October, a new agency, the Federal Board for Vocational Education, originally created to administer the provisions of the Smith-Hughes Act, had seen the emergency which had arisen, and presented to Secretary Baker the need for mechanics and technicians in the Army, in addition to engineers. Major McCoach, who represented the War Department for the whole situation, recommended that the entire training of mechanics and technicians be taken over by the Federal Board, and an order was issued by the War Department to the General Staff Corps, directing them to turn to the Federal Board for trained men when necessary.

For a time, apparently, the matter was settled, but

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the Committee on Engineering Education soon grew to feel that the functions of the Federal Board scarcely covered the whole problem. The Committee took the liberal point of view that the work should be delegated to some broadly representative body which should have charge of engineering, technical and vocational training in the widest sense. Meanwhile, the Federal Board was organizing voluntary courses, largely for radio and buzzer operators. Although radio and buzzer training had been inaugurated by the Signal Corps itself, the Federal Board received no authority to expend War Department money or to enforce training. The latter feature was a basic defect, since it made impossible any permanent control over the men in training and caused difficulty in adjusting supply and demand. The natural result was a series of strong representations to the War Department, asking that the students in training be composed of drafted men under the direction of the Federal Board. On January 11, 1918, the Federal Board presented to the War Department a definite plan of administration of training for technicians in the Army. This plan was refused by the War Department, but the original idea of Dean Bishop's Committee on Engineering Education was accepted, namely, that the training be directed by a representative committee. There was considered first a joint committee of the War Department and the Federal Board, but later a broader plan was worked out for coöperation between the War Department and various educational interests, comprising an advisory board in which the Federal Board was represented. At the first meeting of the newly created Committee and

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Advisory Board, on February 13, 1918, the Federal Board presented a plan the basis of which was that "all forms of education for Army occupations, other than military, when carried on in civilian schools and colleges and industrial or kindred plants, are to be under the immediate direction and supervision of the Federal Board." This plan was found unacceptable, and the Federal Board withdrew from membership in the Advisory Board, thus terminating its connection with the War Department's training plan. The activities of this newly formed Committee on Education and Special Training will receive consideration in a separate chapter. They are of the most vital importance to the American college during the war.

In the preceding pages an attempt has been made to trace the various influences and movements which were active at Washington during 1917 in the development of a war programme for the universities and colleges. Out of the initial confusion of the early spring several definite results had come: first, the establishment of the various student reserve corps; second, the formation of the Committee on Classification of Personnel in the Army; and finally, the long struggle of interests which led to the appointment of the Committee on Education and Special Training as an integral part of the War Department itself. Numerous things which the colleges desired to have accomplished still remained undone, as, for example, governmental control of military training in all colleges desiring such an arrangement; the reservation of certain teachers from active military service, particularly in the technical sciences; governmental help for the private college during the war

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period; and so on. Broadly speaking, however, the year had been one of accomplishment, since it brought from the Government acknowledgment in both word and deed of the fact that the American college had found its place in war as well as in peace.

The beginning of the year 1918 brought with it the first definitely organized pan-collegiate agency, known as the Emergency Council on Education,⁴ with headquarters at Washington. The movement for such an Emergency Council may be regarded as originating, although in somewhat different form, in the resolution passed by the Association of American Colleges calling on the President of the United States to take steps toward the immediate comprehensive mobilization of the educational forces of the Nation for war purposes under centralized administration, which would coördinate effort and stimulate defensive activities. It was hoped that the President might appoint an Educational Administrator who should act informally as a Secretary of Education and thus organize the educational interests of the country. When this was found to be impossible, representatives from the national societies named below met on January 30, 1918, and organized the Emergency Council on Education:

Association of American Universities
Association of State Universities
Association of American Colleges
American Association of Agricultural Colleges and
Experiment Stations
Catholic Education Association
Association of Urban Universities

⁴ Later changed to the American Council on Education.

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National Education Association
National Council of Education
National Education Association Department of
Superintendence
American Association of University Professors
Society for the Promotion of Engineering Education

Later the following associations came into coöperation with the Emergency Council:

National Council of Normal School Presidents and
Principals
Association of American Medical Colleges
National Research Council
Association of American Law Schools
Association of Collegiate Schools of Architecture
American-Scandinavian Foundation
National Board for Historical Service
National Association of Corporation Schools
National Association of Directors of Educational
Research

The object of the Council was defined as follows:

The object of the Council is to place the resources of the educational institutions of our country more completely at the disposal of the National Government and its departments, to the end that through an understanding coöperation:

 Their patriotic services may be augmented;

 A continuous supply of educated men may be maintained; and

 Preparation for the great responsibilities of the reconstruction period following the war may be anticipated.

Especial credit is due the officers of the Council for the energetic initiative and willing spirit of coöperation shown. They are, President Donald J. Cowling of Carlton College, chairman, and President

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P. L. Campbell of the University of Oregon, secretary-treasurer. They have been ably assisted by President McCracken of Lafayette College and numerous others. While the Council is still young, it has assisted in numerous valuable movements, as, for example, the proposed scholarship plan for French women in American colleges, the effort to establish a Department of Education, the movement for Government-controlled military drill in colleges, etc. With a simple organization, adequate funds, and a permanent Washington headquarters, the Emergency Council should become a real clearing house for higher-educational interests during the war and after.

While all of the organizations already mentioned have dealt with problems of college training in various forms, the field of research in higher-educational institutions has also been developed by the war. The various efforts have been coordinated to a large extent by the National Research Council, comprising the chiefs of the technical bureaus of the Army and Navy, the heads of Government bureaus engaged in scientific research, a group of investigators representing educational institutions and research foundations, and another group including representatives of industrial and engineering research. The National Research Council now serves as the department of science and research of the Council of National Defense. While its activities include vastly more than the college and university field alone, some investigation is now being carried on in academic laboratories under the direction of the Council or its allied interests, and much of the work is being directed by college professors. Such service on the

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part of the colleges, while often not immediately evident, is a vital factor in winning the war.

It would carry us too far were we to attempt to name all the national organizations whose activities have directly influenced academic life and procedure during the war. Nearly every meeting of college men since April, 1917, has devoted its time to a consideration of war problems. The Joint Committee on the Emergency in Education of the National Education Association is a body whose plans, if successful, will profoundly influence education of every type. The National Conference Committee on Standards is broadly representative of nearly every type of college and university. It should be the final authority in sanctioning temporary or permanent change in academic procedure to meet war conditions. Various professional organizations, as, for example, the National Board for Historical Service, have rendered excellent service in specialized fields. The permanent Government educational agencies have given themselves over almost entirely to war service. Particularly the United States Bureau of Education has been untiring in its war work.⁵

All of these movements are intensely significant for American higher education. The world is undergoing a war change and the college with it. The urge of national endeavor is finding its expression educationally in the efforts of small groups of men who represent large educational interests or governmental activities. It is a most satisfying sight to behold the ever closer coöperation between the colleges and life.

⁵ See "The War Work of the U. S. Bureau of Education," *School and Society*, May 25, 1918.

CHAPTER V

THE WAR DEPARTMENT'S COMMITTEE ON EDUCATION AND SPECIAL TRAINING

Its functions and organization — Its first problem: supply within seven months of 100,000 vocationally trained men — Courses of instruction — Coöperation of the colleges — Status of the soldier student — Methods of instruction — Coöperative training — Effect on academic standards.

The struggle of the colleges for official recognition and for some plan of organic relation to war activities has been described in the preceding chapter. It began to bear fruit in February, 1918, with the formation of the Committee on Education and Special Training, attached to the Division of Operations as an integral part of the War Department. Hitherto the colleges had found it extremely difficult to gain the ear of the Department, and long delays had marked its response to even the most reasonable offers of coöperation. The War Department was busy making war, and its traditional organization included no one whose official duty it was to enlist the eagerly proffered resources of the colleges and universities. Doubtless the interest of Dean Keppel of Columbia, then confidential secretary to Secretary Baker and later Third Assistant Secretary of War, in charge of non-military activities, had much to do with the creation of the Committee on Education and Special Training. At any rate, it became immediately the long wished-for clearing house for education in war service. Before its creation nearly all of the staff corps had established on their own separate initiatives

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various corps schools intended to train for their own purposes. Thus colleges dealt sometimes with one branch of the Army, sometimes with another, or, possibly, with several at once. The plans of organization and administration naturally differed considerably, and no unified standard of conduct was possible. While these activities are still administered, at the time of writing, by the individual corps of the Army, it is possible that eventually all of the educational activities of the War Department will be centralized under the control of the Committee on Education and Special Training.

At the outset the functions of the Committee, as stated in the general Act creating it, were:

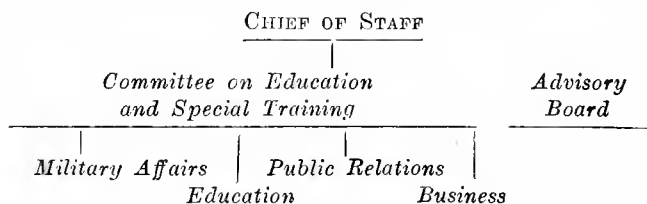
To study the needs of the various branches of the service for skilled men and technicians; to determine how such needs shall be met, whether by selective draft, special training in educational institutions or otherwise; to secure the coöperation of the educational institutions of the country and to represent the War Department in its relations with such institutions; to administer such plan of special training in colleges and schools as may be adopted.

In order to secure the speedy action which has so far marked the activities of the Committee, it was formed by the appointment of three officers, one from each main division of the army organization: Lieutenant-Colonel Robert I. Rees, representing the General Staff Corps; Lieutenant-Colonel John H. Wigmore of the Provost-Marshal-General's Department; and Major Grenville Clark of the Adjutant-General's Department. Had the organization ceased here, it is doubtful whether the same measure of ready contact with purely civilian institutions could have

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been secured as has actually been the case. Following the suggestion which had been made by educational interests during the earlier period of the war, however, an Advisory Board was added to the Committee, representing various civilian interests. After the withdrawal of the representative of the Federal Board for Vocational Education, the Advisory Board consisted of: Dean James R. Angell of the University of Chicago, representing colleges and universities; Dr. Samuel P. Capen, Specialist in Higher Education of the United States Bureau of Education; J. W. Dietz of the National Association of Corporation Schools, representing industrial education in the industries; Hugh Frayne, representing organized labor; Professor Charles R. Mann, late of the Carnegie Foundation, representing engineering education; and Dean Herman Schneider of the University of Cincinnati, representing vocational education.

The relations of the Committee and the Advisory Board have been most cordial and effective. In general, the Advisory Board has served as the defining and outlining medium for the policies jointly adopted, and the Committee has acted in an executive capacity. Here the relation to the various departments of operation has proved invaluable. The organization of the whole plan is admirable in its simplicity:



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Of the four functions graphically displayed above, the military division is administered entirely by the Military Committee. Education is in the hands of Charles R. Dooley, formerly of the Westinghouse Company, as Educational Director; under him are ten district directors representing the various divisions of the country. The division of public relations attends to necessary publicity and interpretation of the Committee's activities and establishes necessary contacts with local communities, while the business relations are cared for by an office staff.

The first duty of the Committee upon its establishment was to fill the calls of the various staff corps whose urgent necessities demanded 100,000 men trained in some 20 basic trades before October 1, 1918. This was the staggering problem put up to the Committee at its organization for solution in a short period of seven months. Fortunately, some of the preliminary work had already been done, since early in 1918 the Bureau of Education had made a careful study of the colleges with reference to their ability to train men during the coming summer. Practically all of the work proposed was of a purely vocational and trade nature rather than of collegiate grade. It is to the eternal glory of the colleges that few of them refused it on this account. Instead, they took immediate inventory of their resources, and almost unanimously pledged support to the new plan. While much had already been done by the Federal Board for Vocational Education and other agencies, experience had shown that the desired results could not well be obtained on a civilian basis, and it was decided to carry on the training under military control. Con-

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sequently, the students were soldiers under military discipline and on pay and subsistence. In general, the educational institutions provided housing, feeding and tuition, for which they were reimbursed by the War Department, while the Government provided officers and equipment. Many of the men were drafted under the selective-service system, although provision was made for voluntary induction.

Regarding the nature of the work it is perhaps best to quote from the bulletin of the Committee itself:

COURSES OF INSTRUCTION

The training required is such as to give the men some practical skill in the simple underlying operations of carpentry, metal working, blacksmithing, auto mechanics, and other mechanical activities useful in the Army.

Only fundamental training is possible in this emergency, and that training must be thoroughly practical rather than theoretical. Most of the courses of training are two months in length. The work required includes the following courses, for which the War Department will provide definite directions and outlines:

1. *Auto Driving and Repair*.—Driving motor vehicles of various types, making all general repairs to motor trucks, cars, motorcycles, tractors.

2. *Bench Wood Work*.—Splicing frames, joining, patternmaking, and fine wood work.

3. *General Carpentry*.—Use of the usual carpenter's tools and materials; practice in rapid rough work with hatchet and saw to qualify the man for building and repairing barracks, erecting concrete forms, rough bridge work, etc.

4. *Electrical Communication*.—Construction and repair of telephone and telegraph lines; repair, adjustment and operation of telephone and telegraph apparatus; cable splicing.

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5. *Electrical Work*.—Installing, operating and repair of electrical machines; inside wiring and power circuits.

6. *Forging or Blacksmithing*.—Jobbing blacksmithing, motoreycle, automobile, truck, gas engine, and wagon repairing.

7. *Gas-Engine Work*.—Reconstructing and repairing automobile, motoreycle and airplane engines.

8. *Machine Work*.—General machine shop work on lathe, drill press, shaper, planer, miller, grinder, etc.

9. *Sheet-Metal Work*.—Coppersmithing and tinsmithing; soldering, brazing and general repairing.

Other courses will be added as the needs of the Army may later require.

As a matter of fact nearly 70 per cent. of the men actually needed had to be trained in some of the allied automobile trades. It was the intention of the Committee at first to use both high schools and colleges, but it soon became evident that collegiate engineering laboratories furnished the best facilities for the work desired. As a result, the Committee during the summer of 1918 had established more than 140 training centers at which more than 34,000 men were at work at the end of June. It was estimated that the shift plan would easily allow the training of the entire 100,000 men by October 1, and the confidence of the War Department in the whole undertaking had been evidenced by its authorization to continue the work for another year.

In the administration of this plan of training the student was a regular enlisted man and primarily a soldier. His station differed in no way from that of any other enlisted man, and he was only secondarily a student, temporarily detailed to a training school, where he might learn a trade which would make him

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of particular usefulness to the Army organization. His daily schedule included a six- or seven-hour period for instruction, and the balance of the time was given over to drill and regular army routine.

The instruction given the soldier student was essentially of a practical nature. The common period of two months allowed of but little theory, and the method of "learning by doing" was most strikingly demonstrated in the successful operation of these military training schools. In most cases the work was done in school shops, but under conditions such as are described in the following report of work at the University of Pittsburgh, published in the Committee's publication, *The Fighting Mechanic*, for May 27, 1918:

Everything in the equipment of the shop is arranged to reproduce the conditions which the men will have to meet in the field. Instead of setting the cars upon concrete platforms, as has been suggested, the men were called upon to work on a dirt floor in order that they might learn to keep their tools in condition and the parts free from sand.

This same plan has been carried out in obtaining the material upon which the men work. A few new trucks have been loaned by the Government. But by far the greater number of machines fall into one of two groups, *i. e.*, (1) those which have been loaned for repair with an agreement signed by the owner that he will pay for such new parts and material as may be necessary, or (2) old cars in every state of dilapidation bought by the University. Many of these, when put into condition by the men, will be resold. In other words, those who are developing the plan realize that to understand the repair of a complete automobile a man must work upon worn and broken machines in order that he may discover where the wear comes and how the car may be put into running order again.

All these are but elements in the general plan to make

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the work real and practical. The men never get an opportunity to feel that they are merely playing with their tools. They are a part of a group performing an actual task. Ask one of the instructors what they give the men to do to accustom them to their tools before setting them at an automobile. The answer will be about as follows: "On the first day we bring them up to an old car and say, 'take the body off.' They are thrown in and have to swim." As a result of this method certain men are early distinguished as possessing greater ability than the others. These are selected for the more difficult work in the chassis laboratory. Here again a selection takes place, the more capable being sent down to the engine laboratory to become highly skilled gas engine men. Thus the men are sifted into the special work for which they are qualified. In the gas engine laboratory, of course, problems are prepared by the instructor who engages in secret sabotage that the men may again experience by locating and repairing the trouble.

While nearly all of the training detachments were cared for in school shops, an interesting application of the coöperative plan was carried out at the University of Akron. Here the men were housed and fed upon the campus, and their course in tire repairing and vulcanization was laid out, supervised and coordinated by members of the Engineering College faculty. The actual practical work, however, was not carried on in the University shops but in the great rubber factories which form Akron's main industry. Four of the largest of these generously coöperated with the Government and the University by equipping model tire-repair plants in their own establishments, where the soldiers worked under actual industrial conditions, under the immediate direction of trained factory experts.

In Boston the note of practical coöperation was



MUNICIPAL UNIVERSITY OF AKRON: SOLDIERS OF THE STUDENTS' ARMY TRAINING CORPS, VOCATIONAL SECTION
LEARNING VULCANIZING AND TIRE RETAIHING UNDER ACTUAL SHOP CONDITIONS

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struck in a somewhat different way. Here a number of training detachments gave each other mutual assistance. The following description again is taken from the *Fighting Mechanic*:

Franklin Union needed benches for its gas engine work, boards for the wrenches, horses and frames for holding the motors, and boxes for the parts. A carpentry squad might have made these, but Franklin Union has no carpentry squad. So Tufts answered the S. O. S., for Tufts has just such a squad, one hundred men being trained as carpenters. These men took hold of the lumber sent over by Franklin Union in Government trucks driven by men of the detachment and turned out the necessary shop furniture. The Government truck made another trip, this time to bring back the completed equipment. Out of this experience has come an arrangement whereby Tufts will do whatever carpentry work is needed by the other institutions.

Again, Franklin Union had some bracket castings which needed planing. Here it was the machinists at Wentworth that did the trick. It has also been agreed that the men training as electricians at Wentworth shall do all the electrical work required by any one of the Boston detachments. It is probable that they will wire and light the entire basement of a new building likely to be used for housing more men at Franklin Union.

Nor has the mutual helpfulness been altogether one-sided. The sheet metal workers at Franklin Union have been making pails for the various barracks. And they are now to make cans for oil waste and drip pans for the auto courses, not to mention a supply of tin cups.

In all this the men feel that they are at real work because they are making things to be used. Incidentally they are helping to keep down the cost to the Government.

It is perhaps too early to judge the effect of all this activity upon the colleges themselves. Nowhere, however, is the belief held that this excursion into the

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realms of vocational education will in any way lower their standards or impair their usefulness as purely collegiate institutions. Most of them have accepted the work in a spirit of gratitude for the opportunity to render service. Locally speaking, each academic community must necessarily be benefited by the proximity and example of these military detachments, training under the strictest of discipline for an immediate emergency. The effect should be to raise the standard of earnest endeavor in faculty and students and to set an example of the purest patriotism.

CHAPTER VI

THE STUDENTS' ARMY TRAINING CORPS

The Reserve Officers' Training Corps — Proposed extension of the system, on a voluntary basis, to all collegiate institutions — Original plan disrupted by extension of the draft ages — The Students' Army Training Corps created — The danger of "special privilege" — The Government's plan of taking over the colleges as Army training schools — Principles governing the selection of colleges — Collegiate units for officers and vocational units for technical experts — Curricula — The plan inaugurated — Functions of the Committee on Education and Special Training — The Students' Army Training Corps demobilized.

The Committee on Education and Special Training, had it initiated no other activity than the one just described, would have justified its existence amply. Its programme, however, was a comprehensive one, for none of the war endeavors of the colleges was considered foreign to its field. It was a question at first of selecting the tasks most immediately necessary, and here there could be no doubt that the call of the Army for trained men was all important. During its fulfillment, however, the Committee found time to study in considerable detail the subject of military training for college students. Since less than one-third of the colleges of the country already had Government-controlled military drill in the form of the so-called R. O. T. C., the Reserve Officers' Training Corps,¹ created by the National Defense Act of June 3, 1916, it was immediately apparent that much re-

¹ For official documents concerning the Reserve Officers' Training Corps, see Appendix II.

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mained to be done in this field. The War Department had adopted the policy of refusing to establish any more R. O. T. C. units until the fall of 1918, and any large extension of the plan, even at that time, seemed doubtful. Accordingly, the Committee prepared and finally submitted during May, 1918, an outline authorized by Secretary Baker of a comprehensive military-training plan for college students. Since this represents the first effort ever made by the Government of the United States to offer military training generally to all colleges, the plan is here reproduced:

May 6, 1918.

The Secretary of War authorizes the following announcement:

In order to provide military instruction for the college students of the country during the present emergency, a comprehensive plan will be put in effect by the War Department, beginning with the next college year, in September, 1918. The details remain to be worked out, but in general the plan will be as follows:

Military instruction under officers and non-commissioned officers of the Army will be provided in every institution of college grade, which enrolls for the instruction 100 or more able-bodied students over the age of 18. The necessary military equipment will, so far as possible, be provided by the Government. There will be created a military training unit in each institution. Enlistment will be purely voluntary but all students over the age of 18 will be encouraged to enlist. Enlistment will constitute the student a member of the Army of the United States, liable to active duty at the call of the President. It will, however, be the policy of the Government not to call the members of the training units to active duty until they have reached the age of 21, unless urgent military necessity compels an earlier call. Students under 18 and therefore not legally eligible for

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enlistment, will be encouraged to enroll in the training units. Provision will be made for coördinating the Reserve Officers' Training Corps system, which exists in about one-third of the collegiate institutions, with this broader plan.

This new policy aims to accomplish a two-fold object: First, to develop as a great military asset the large body of young men in the colleges; and second, to prevent unnecessary and wasteful depletion of the colleges through indiscriminate volunteering, by offering to the students a definite and immediate military status.

Later announcement will be made of the details of the new system. In the meantime, presidents of collegiate institutions are requested to call this matter to the attention of all their students. Those who do not graduate this spring should be urged to continue their education and take advantage of this new opportunity to serve the Nation.

Such an announcement by the War Department was of extreme significance, since it endorsed by act as well as by word the principle that students under draft age serve best by continuing their education. However, the War Department, as was its duty, considered first of all the military needs of the country, which it judged to be best served by the creation of just such a great body of potential officer material. The rigid plan of Government control and instruction contemplated assured the possibility of training a good soldier without too great an interruption of the regular college curriculum, and the colleges for their part almost universally consented to give credit toward graduation for such military work. Some had indeed gone so far as to create majors in military science.

When the collegiate training plan had been nearly completed, there arose, late in the summer of 1918, a

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new factor which demanded a complete revision of nearly everything previously undertaken, namely, the extension of the draft ages to include men down to 18 years of age. Since the great majority of American college students are included between the ages of 18 and 21, it was apparent that any plan now adopted without some organic and well defined relation to the selective draft would be impossible of execution. The War Department and its Committee on Education and Special Training were face to face with the knotty problem of saving and training the potential officer material contained in the colleges without at the same time giving deferred classification to men liable to draft or seeming to favor the college student above his fellow with less education.

The original plans for the Students' Army Training Corps contained, among others, the following provisions: the student must be more than 18 years old and *not* a registrant under the Selective Service Regulations; entrance was gained by voluntary enlistment; the status of the student was that of a private, but no call to the colors was to be issued until the age of 21, "unless urgent military reasons compel an earlier call." These urgent military reasons came into being somewhat earlier than had been anticipated, in the form of the extended draft ages, and consequently the whole scheme had to undergo certain modifications in many of its particulars. The age limitation of 18 was kept unchanged, but since men above 18 were now registered for the service, and since voluntary enlistment had been discontinued, the following order, creating a new Students' Army Training Corps was issued:

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Under the authority conferred by sections 1, 2, 8 and 9 of the Act of Congress "authorizing the President to increase temporarily the military establishment of the United States," approved May 18, 1917, the President directs that for the period of the existing emergency there shall be raised and maintained by *voluntary induction and draft* a Students' Army Training Corps. Units of this Corps will be authorized by the Secretary of War at educational institutions that meet the requirements laid down in Special Regulations.

The greatest difficulty in the rearrangement probably lay in the necessity of creating an organization beyond the possibility of criticism or the charge of "special privilege." Foreseeing this difficulty and acting with characteristic American breadth of conception, the War Department solved its problem by proposing to the colleges a plan which in effect amounted to the Government's taking over their entire plants as preliminary officers' training schools, to be carried on by the War Department in so far as everything except the administration of actual classroom instruction and housing and subsistence of soldiers was concerned. This plan² was launched at three great sectional meetings of college presidents with Army representatives held respectively at San Francisco, Fort Sheridan, Illinois, and Plattsburg, New York, during the last days of August and the first days of September. The plan as proposed contemplated the following purpose:

The object of establishing units of the Students' Army Training Corps is to utilize effectively the plant, equipment

² For official documents concerning the organization, curricula, and contractual relations of the Students' Army Training Corps, see Appendix III.

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and organization of the colleges for selecting and training officer-candidates and technical experts for service in the existing emergency.

From the first the Committee on Education and Special Training adopted a comprehensive policy in its selection of colleges for the establishment of S. A. T. C. units. The three main provisions were: standard entrance requirements of graduation from a four-year secondary school; maintenance of a curriculum of at least two years of 32 weeks each; and an attendance of at least 100 male students. Nor were the units confined to liberal-arts colleges, for authorization was given also for their establishment at schools of technology, agriculture, forestry, business training, pharmacy, medicine, law, dentistry, veterinary medicine and education, and at graduate schools, normal schools and technical institutes.

Those colleges which had already conducted during the summer of 1918 Special Training Detachments under the direction of the Committee were now directed to merge the old military organization with the new. There resulted thus a Students' Army Training Corps with two sections; the collegiate unit, called Section A, and the vocational unit, called Section B. These, while identical from the standpoint of military organization, were entirely separated in the matter of instruction, since the prerequisite for entrance to Section B was only a grammar-school graduation. In order to assure the democracy of the whole training system, however, provision was made for recommending from Section B to Section A those men who showed themselves fit for training as officers. From the first it was made

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clear that members of the S. A. T. C. were in no favored class as regards deferment of actual field service, and arrangements were made to call away men from the college units in the same proportions and at the same periods as other men of like age became eligible for active service.

The curriculum was naturally determined largely by the policy of the War Department. The greater part of the time was given over to college work along lines either directly or indirectly related to war service. At the request of the Army officials, the year was divided into four quarters in order to facilitate the withdrawal and reassignment of men within comparatively short periods. The only generally required course was one on the issues of the war, given to all members of the Corps.

On October 1, 1918, there was celebrated at more than 400 colleges throughout the country the formal inauguration of the Students' Army Training Corps. At the same moment more than 140,000 college men took the oath of allegiance and dedicated themselves to the service of their country. It was an impressive occasion and one of deep moment for the higher-educational system of the United States, for it represented the culmination of collegiate effort for official recognition and the final coming of the opportunity for service to the fullest extent. Although no Secretary of Education had been created, education nevertheless now assumed its rightful place with labor, commerce and agriculture as an acknowledged national force—as a vital and properly organized factor toward the winning of the war.

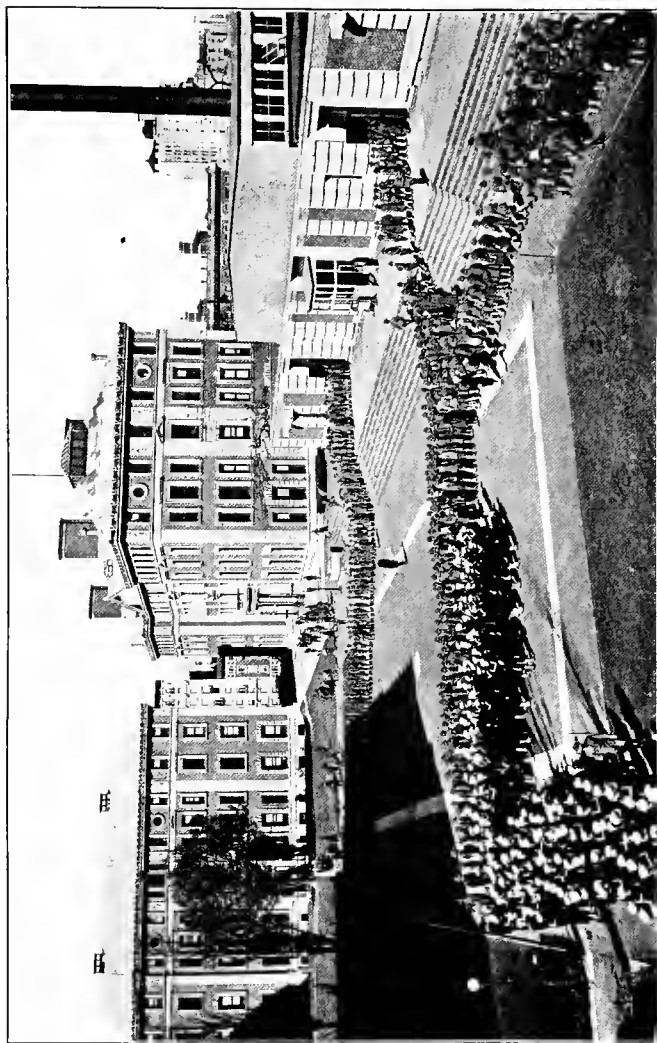
Fortunately, the administration of the new train-

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ing plan was put into the hands of the Committee with whom it originated. Thus the standpoint of the colleges might always be represented by the Advisory Board, composed largely of educators of civilian rank. The growing importance of the Committee on Education and Special Training was particularly emphasized by a later order of the Chief of Staff consolidating and putting under its jurisdiction the various Enlisted Reserve Corps, Engineers, Medical, Quartermaster, etc.³ While it is not yet fully recognized by college men, a definite avenue of approach to the Nation's activities came into existence with the creation of this Committee and its Advisory Board. During its short existence it has already accomplished two of the main aims expressed by the general meeting of college heads in May, 1917 — definite assignment of war training to the colleges, and Government control and support for college military training. For the period of the war at least it had of necessity to be considered the most powerful factor in moulding the higher-educational progress of the country.

It is unnecessary to dwell here upon the many and unusual difficulties which from the outset hampered the progress of the S. A. T. C. plan. The difficulty of obtaining sufficient experienced officers for its proper administration, the delays in induction, the inevitable confusion attendant upon a quick rearrangement of the curriculum, the devastating epidemic of influenza and the long periods of quarantine, and finally the cessation of hostilities in Europe and the decision of the War Department on November 26 to demobilize the Corps within two

³ See Chapter X.



COLUMBIA UNIVERSITY: MILITARY AND NAVAL UNITS OF THE STUDENTS' ARMY TRAINING CORPS AT THE MESS HOUR. PHOTOGRAPH BY THE U. S. SIGNAL CORPS SCHOOL OF PHOTOGRAPHY

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months of its organization — all these factors contributed to the chaotic conditions which prevailed in most colleges during the fall of 1918. However earnest the efforts at coöperation between the contracting parties, the conditions just described prevented any fair trial of the plan, and it would be equally unfair to laud it as wholly successful or to brand it as a failure. Conceived with the most patriotic of motives and administered with an unusual breadth of vision, it is not unreasonable to believe that had the war continued, it would have proved itself eventually the most valuable of all the many war services of the colleges.

The final word on the Students' Army Training Corps may be left to the Committee on Education and Special Training, which on December 11, 1918, addressed the following communication to the presidents of institutions at which S. A. T. C. units were authorized:

In view of many inquiries as to the reasons for the demobilization of the S. A. T. C. it seems appropriate at this time to state briefly the conditions which led to the organization of the Corps and the decision to discontinue it following the armistice with Germany.

(1) Section B. The National Army Training Detachments (later Section B of the S. A. T. C.) were started in April, 1918. The purpose was to make use of the facilities and instruction personnel of educational institutions to mobilize and train a large reserve of vocational specialists — radio, telegraph and telephone men, motor mechanics, machinists, etc., which the developments of the war had shown to be indispensable. About 140 colleges and schools took part in this project. Nearly 95,000 men were turned out of these detachments, of whom it is estimated about 70,000 were sent to France for service in all branches of

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the Army, especially, Field Artillery, Engineers, Signal Corps and Motor Transport. About 35,000 additional were in training at the time demobilization was ordered. Broadly speaking, this work has been wholly successful. In addition to supplying nearly 100,000 additional men when they were sorely needed, the value of the vocational training under a military *régime* was fully demonstrated. The quality of the men was excellent and one of the features was the very large percentage of men found eligible as officer candidates. The results were accomplished by a remarkable degree of coöperation between the civilian and military agencies. Institutions participating in this training may feel that they made a direct and important contribution to the defeat of the enemy.

The vocational training detachments were conducted to meet a specific military need which no longer existed after November 11. Consideration was given to the possibility of using the schools for industrial training of soldiers during the demobilization, but inasmuch as the appropriations for financing this work were made to train men for military service in the emergency, they could not without Congressional action be used for training men for civilian pursuits.

(2) Section A. A great proportion, probably the majority, of the commissioned personnel of the Army in this war has been composed of college men. The excellent results achieved in the training of these men in the great officers' camps of 1917 made it apparent that in a protracted war it would be of the utmost importance to conserve and use to the best advantage the college student body as a source of non-commissioned officer and officer material for the line of the Army. The experience of our allies, especially England, led also to this conclusion. Moreover, certain technical branches of the service, such as Medical Corps, Engineers, Chemical Warfare, Signal Corps, etc., were also entirely dependent for a future supply of officers and technical experts on the graduates of professional and technical schools. During the college year of 1917-18 the student body, especially in the upper classes, had become greatly depleted. In August, 1918, a new Army

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programme was announced which called for the organization of 98 divisions by June 30, 1919, and the doubling of the Army's strength within less than a year. Simultaneously, the new Draft Act was proposed, reducing the draft age to 18. The fulfillment of this programme involved the calling into the service practically all able-bodied college students within ten months, and most of them within a very short time. It became clear that only a small fraction of the college student body would return to college, and that they would become scattered through the Army, the Navy and industry without being put to the greatest possible use. To meet these conditions, the Students' Army Training Corps was conceived purely as a military measure in order to hasten the formation and training of the new armies. The purpose was to mobilize young men in the colleges where they might receive special preliminary training and discipline in advance of the time when they would have been called under the draft. No deferment from active service was to be given. The intention was to use this body of men as required, to the best possible military advantage.

The Students' Army Training Corps was, to some extent, misrepresented as a plan for conserving college education for the benefit of the colleges or as a plan to give education free of expense for the benefit of individuals. Its sole purpose, however, as repeatedly stated by the War Department, was to increase the military power of the country as effectively and quickly as possible. With the further development of the Corps under war conditions, this purpose was in a fair way to be achieved.

The Students' Army Training Corps was organized on October 1, 1918, and ordered demobilized on November 26, 1918, so that its period of existence was too short to permit of all difficulties being met. It was anticipated that under the best conditions a number of months would be required to perfect the organization in view of the complexity and size of the problem. In addition, however, to the normal difficulties involved in the adjustment of collegiate machinery to new conditions, special difficulties were met with

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in the shape of the serious influenza epidemic and an unlooked-for shortage of uniforms due to larger demands for the overseas forces. In addition, it was necessary as a matter of military necessity to supply some 10,000 officer candidates within the first five weeks, whereas it had been planned not to make any drafts on the Corps for three months, when the units would have been thoroughly organized and the men systematically classified. In spite of the exceptional conditions, certain definite results were accomplished. Units were organized in 516 collegiate institutions, and 140,000 men were inducted as soldiers. This represented a net increase of the armed forces of the United States, since these men entered the service in advance of their time for call under the draft. Eight thousand six hundred forty-two (8,642) candidates were transferred to officers' schools. In the preparatory summer camps 8,000 picked young men were trained and 2,700 second lieutenants commissioned.

In the great majority of cases the units were functioning satisfactorily and conditions were improving from day to day at the time of the armistice. The entire enterprise was, however, only in its initial stage, and this Committee regrets that there was not more time to perfect the organization of the Corps and to overcome the obstacles that remained. This, it is believed, could have been entirely accomplished within another sixty days. As it is, although a great majority of the institutions concerned have expressed themselves as satisfied with the results of the military training in their institutions, and over seventy per cent. were willing to continue the Corps until the end of the college year, it is not felt that a final and conclusive experiment in the combination of military and academic training in colleges has been made.

Until the time of the signing of the armistice it was necessary for the Committee on Education and Special Training, in common with all other branches of the War Department, to act on the assumption that the war was to go on for an indefinite period. The signing of the armistice, however, made it necessary that the War Depart-

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ment should immediately discontinue all military preparations not clearly needed. There were many reasons connected with the plans of individuals and general reasons of policy which would have been made it desirable to continue the S. A. T. C. However, as in the case of Section B, the passing of the strictly military necessity made it impossible to use the appropriations for a continuance of the training for other ends. Accordingly, discontinuance of the Corps became necessary as soon as it became apparent that conditions warranted a general demobilization in this country. The disturbance of the plans of the many institutions which desired to continue the S. A. T. C. to the end of the college year is regretted, but it is felt that the necessity for this demobilization will be recognized by all.

The Secretary of War has directed the continuance and development of the Reserve Officers' Training Corps. The response of the colleges indicates a widespread desire to continue military work under this system. Every effort will be made to improve the R. O. T. C. and your coöperation is invited to make it a complete success.

It is already apparent that the R. O. T. C. system will be greatly extended. On December 21, 1918, Secretary Baker authorized the statement that about one hundred of the 115 units in existence before the war were being reëstablished and that applications had been received for about two hundred new units. The administration of the R. O. T. C. has been committed to the Committee on Education and Special Training, which thus continues a living force in our national educational organization.

CHAPTER VII

THE WAR SERVICE OF THE TECHNICAL SCIENCES

Technical science broadly interpreted — Reciprocal reactions of war and science — Science stimulated by war — Modern warfare dominated by science — Origin of the sudden expansion of science in the last century — Development of engineering education in the United States — *Rôle* of science in the Civil War — Its place in modern military education — Scientific callings listed for the Army — War research in college laboratories — Government research organizations — War service of the Massachusetts Institute of Technology.

In the narrower sense of the term, the expression “technical science” is limited to that knowledge necessary for the practice of the various types of the engineering profession. In a broader sense, it may be construed as practically synonymous with the more loosely used word “science” itself. Unless otherwise specified, it will be employed here in the more general application.

Science has been stimulated in its development by two great factors, industry and war. In turn, it has reacted upon these two to increase their efficiency. Thus during both peace and war science has had its proper medium of expression. While at first thought the application of science to war would seem to have little value when turned toward pursuits of peace, we must remember that the military need for roads and bridges lies at the foundation of the oldest of all the strictly technical sciences, namely, civil engineering. Doubtless commerce would eventually have accom-

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plished the same results, but it remains true that the oldest roads in Europe are military roads, built and maintained for the use of armies. On the other hand, the scientific attainments of peace and industry have always been of immense value in time of war. In fact, each new war of the last century has been based on a higher scientific plane than its predecessor by reason of the scientific achievements of the intervening periods of peace. More and more has science come to the aid of what we might call the less strictly military factors of war, as, for example, transportation, health, production of munitions, construction, etc. In fact, these attendant factors have reached such a stage of development that they rival in importance and surpass in extent the purely military activities. A whole nation nowadays may well enlist in a war, for the army is more and more dependent upon the efforts of its workers at home. These activities are almost always determined by technical knowledge and carried out under the supervision of scientifically trained men. It is impossible to overestimate the extent to which science dominates modern warfare and its attendant activities.

The intensive application of the technical sciences to warfare is a development of the last few decades and is contemporaneous with the development of formal technical education in colleges and universities. Just what actually brought about the increased interest in science and the immense growth in its practical application is hard to determine. It is difficult, for example, to tell why the Nineteenth Century should predominate so much more markedly as the scientific period than the Eighteenth or the

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Seventeenth. The sudden rise of technical development has been assigned to such various causes as national and international expositions, the passage of legislative acts (specifically in the United States the Morrill Act of 1862), great wars, etc. Doubtless all of these have stimulated technical education, science and invention, as well as public interest, but none of them is acceptable as the original cause. If such an original cause can at all be segregated from all the contributing factors, it may well be found to lie in the three great inventions which facilitated transportation and intercommunication, namely the steam engine, the steamboat, and the telegraph. These inventions opened to the world a new and freer life, the demands of which naturally brought with them the scientific development necessary for their satisfaction. We are safe in saying that, had the problems of transportation and communication been solved in the early Eighteenth instead of in the Nineteenth Century, the world would be today a century ahead of its present mark of scientific achievement.

As soon as scientific accomplishment had begun, schools sprang up to teach its laws and conduct research in its furtherance. The Civil War marks in this country the dividing line between the old and the new.¹ Prior to the beginning of the Civil War, the only engineering schools in the United States were, in

¹ For much of the statistical information and suggestive conclusions which follow, the author wishes to acknowledge his indebtedness to Professor C. R. Mann, formerly of the Carnegie Foundation for the Advancement of Teaching, who has placed at his disposal the results of his researches in engineering education, since published by the Foundation; and also to the *Cyclopedia of Education*, edited by Professor Paul Monroe of Columbia University.

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the order of their establishment, Rensselaer Polytechnic Institute, the Lawrence Scientific School of Harvard University, the Sheffield Scientific School of Yale University, and the school (or course) of civil engineering of the University of Michigan. The passage of the Morrill Act of 1862, with its grant of Federal aid to the individual states for the purpose of founding colleges of mechanic arts (and agriculture), at once stimulated interest in scientific study, and within the next decade 17 engineering schools were in operation. Dr. Mann gives the following interesting figures:

The four schools of 1860 increased to seventeen by 1870, to forty-one by 1871 and to seventy by 1872, and to eighty-five by 1880. . . . The number of students has increased from fourteen hundred in 1870 to thirty-three thousand in 1917, and the annual number of graduates in engineering from one hundred in 1870 to forty-three hundred. Then there were less than three graduates per million population; now there are about forty-three per million. . . . From figures published by R. M. Wellington in *Engineering News* for 1893 and from data presented in the Reports of the United States Commissioner of Education, it appears that the total number of engineers graduated in the succeeding decades was approximately:

Prior to 1870.....	866
1871-1880....	2,259
1881-1890....	3,837
1891-1900....	10,430
1901-1910....	21,000
1911-1915....	17,000

The total number of engineering degrees granted in the United States up to 1915 has therefore been about 55,000.

This tremendous increase has naturally had the effect of enriching greatly the field of technical study

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itself. Military necessity gave rise to the science of civil engineering, which has grown to such proportions as to be subdivided into hydraulic engineering, railroad engineering, structural engineering, sanitary engineering, etc. The development of steam power has brought with it the many intricate problems of machinery which constitute the science of mechanical engineering. More recently electrical engineering has developed a field of its own. So complex has become the whole structure that:

As long ago as 1902 sixteen separate professional courses, not counting agriculture and closely allied subjects, were being offered in the technical schools of all classes. The following table shows the number of institutions offering each one of these courses:

Architecture.	19
Civil Engineering.	95
Chemical Engineering.	21
Electrical Engineering.	79
Irrigation Engineering.	2
Mechanical Engineering.	85
Metallurgical Engineering.	7
Mining Engineering.	36
Marine Engineering.	4
Sanitary Engineering.	11
Naval Architecture.	6
Textile Engineering.	4
Railway Engineering.	5

In many cases agriculture, forestry, domestic science, or horticulture are offered, but these courses are not included in the list.²

Since 1902 this variety of courses has been greatly extended. In fact, the term engineering has assumed

² Edwin Dexter Grant, *A History of Education in the United States*, p. 359.

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so broad a meaning that we nowadays speak even of production engineering, conservation engineering, etc.

It is not evident that engineering, or indeed science at all, in its modern meaning, played any very important *rôle* in the Civil War. Naturally the fundamental applications of the old military or civil engineering were present in bridge building, highway construction, etc. But in so far as the principles of modern science and technology are concerned, the Civil War belongs to the dark ages. The present almost universal applications of science to every branch of warfare and all its allied activities were almost entirely lacking. It has already been shown that only four schools of technology existed at the outbreak of the Civil War, and that even as late as 1870 only 866 men had been graduated from technical schools. At the time of our entrance into the present war, on the other hand, nearly 60,000 degrees had been granted by engineering schools, and considerably more than 125 such institutions were in existence, while from 1870 to the present time the number of engineering graduates per million of population had increased from three to 43. It is not strange if, as a result, the science of warfare has been reborn in the last fifty years.

The influence of the development of the technical sciences in war is most evident in the subjects now studied at the various Government schools of war. Naturally purely military science and strategy always occupy an important place, but the foundation of the whole course is laid in the technical sciences. As an example may be taken the curriculum of the Naval Academy at Annapolis, which includes the following:

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Mathematics, first two years: algebra, geometry, trigonometry, calculus analytical geometry, spherical trigonometry, stereographic projection.

English, first two years: rhetoric, composition, literature, naval history.

Modern languages, first two years and last half of last year: French and Spanish.

Marine engineering and naval construction, whole course except first half year: mechanical drawing, mechanical processes, principles of mechanism, marine engines and boilers, naval construction, engineer-mechanics, experimental engineering, gas engines, turbines.

Physics and chemistry, second year: elementary physics, chemistry, physics.

Seamanship, last two years: boats, ships, naval tactics, naval warfare, international and military law.

Ordnance and gunnery, last two years: infantry, artillery, gun drills, torpedoes, mines, elastic strength of guns, exterior ballistics, range tables, fire control, target practice.

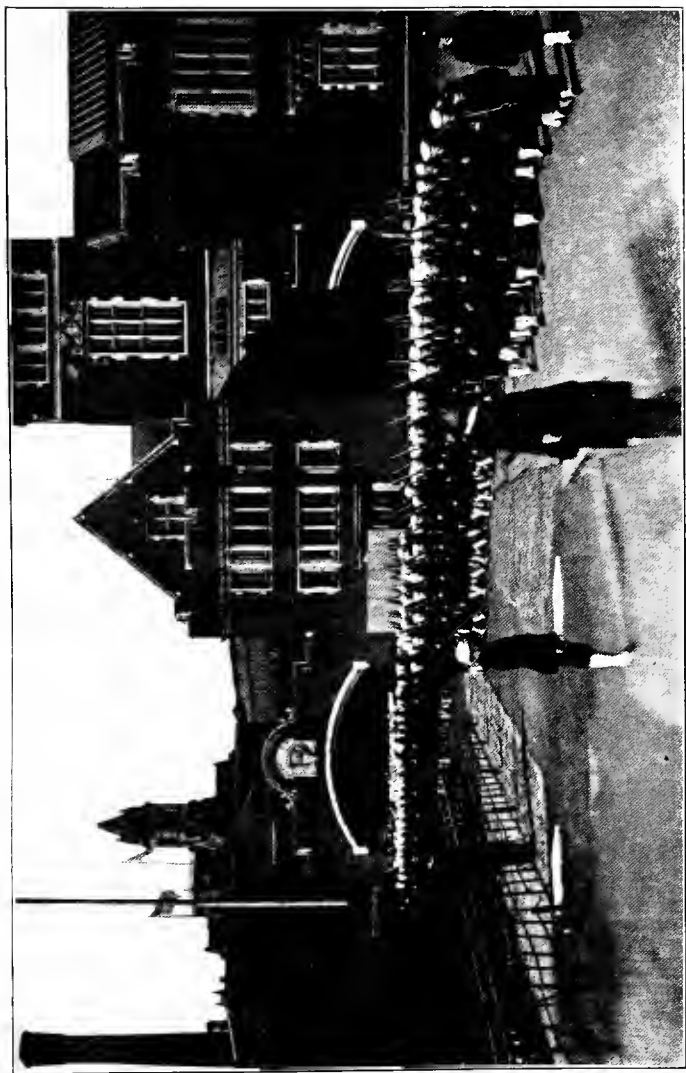
Mechanics, first half of third year: theoretical and applied mechanics.

Electrical engineering, last two years: electricity, magnetism, electro-magnetism, direct and alternating currents, dynamo-electric machines, heat, power, light, wiring, testing, communications, devices and instruments, wireless telegraphy, and telephony.

Navigation, last half of third and fourth year: astronomy, theory and practice of navigation, compass deviation, and surveying.

Naval hygiene, first half of fourth year: effects of alcohol and narcotics, first aid to injured.

Until the summer of 1917 no general effort had been made to classify the various types of scientific training which could be used in the different branches of the service. In the Army each branch provided for its own needs as best it could, usually by a reserve list



UNIVERSITY OF PENNSYLVANIA NAVAL UNIT OF FIVE HUNDRED MEN ENTERING FRANKLIN FIELD FOR REVIEW

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or reserve corps of men trained in the necessary callings and, later, by the establishment of various staff corps schools. When the Committee on Classification of Personnel in the Army had been established by Professor Walter Dill Scott's efforts, its most important task was a comprehensive study of the needs of every branch of the service for trained men. As a result there was worked out in coöperation with the Committee on Education and Special Training a system for training and distributing the needed men to meet the demands as they arose. This system is based upon an "Index of Occupations" issued by the Committee on Classification of Personnel and containing nearly thirty closely printed pages of various occupations. Most of these are trades requiring no preliminary scientific training. It is worth while, however, to separate from these the purely scientific callings, as listed below, since they represent the first organized effort to catalogue the scientific needs of the military service:

- Aeronautical engineer
- Analyst, food
- Architect,
 - engineer
 - landscape
 - naval, ship and all craft
 - supervising
- Automobile engineer
- Bacteriologist,
 - food
 - general
 - water and ice
- Cartographer
- Chemical engineer

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Chemist,

- acids and dyes
- analytical
- cement
- explosives
- fireworks
- food analyst
- inorganic
- metallurgical
- organic
- paint mill
- pickles
- poisonous gases
- soaps

Civil engineering,

- bridge
- buildings
- concrete
- highways or streets
- hydraulic
- hydro-electric power plant
- irrigation
- railroad
- structural steel
- water supply and drainage

Dentist

Draftsman

Electrical engineer

Electrotherapist

Epidemiologist

Forester

Heating and ventilating engineer

Hydrotherapist

Mathematician, expert

- calculus

- computer, general

- trigonometry

Mechanical engineer

Meteorologist

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Mining engineer
Neurologist
Nurse
Optician
Osteopath
Pharmacist
Physician
Physicist
Psychiatrist
Psychologist
Sanitary engineer
Scientific observer
Sewage disposal expert
Surgeon
Surveyor
Topographer
Veterinarian

It must be borne in mind that men of the professions listed are needed not only in the Army, but to a greatly increased degree in war time in civil life for the production of war material. The great majority of such men must be trained in the colleges. They are the real leaders in time of war, even more than in time of peace, and furnish probably the greatest contribution of the educational institutions to the conduct of war.

The assistance which the colleges may render through technical service is many-sided, but, generally speaking, it can be divided into two classes: service by graduates and faculty off the campus, and service by research in college laboratories. The need of the Army and of war industry for service of the first type has already been made evident. The second type is still far from being developed to its fullest extent and possibilities. A recent inquiry by the

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Bureau of Education elicited the fact that only about forty, from a total of 216 institutions replying, are carrying on research work of any sort on war problems. While it is undoubtedly true that many of the smaller colleges are unfitted by lack of equipment and investigators for any detailed research, yet it is equally evident that there must be more than forty institutions in the United States which could be of real service to the Government in some particular were they given the opportunity to coöperate. Few even of the number now conducting such work are operating in this particular to their full capacity, either in men or in equipment. The natural agency for the organization of war research in college laboratories is undoubtedly the National Research Council, to which come for consideration the problems of all our war activities. Such a field for service doubtless must soon be used to its full capacity by the Council.

At the present time war research is being conducted most effectively in connection with various branches of Governmental activity. Organization for a single purpose and ample funds have enabled these official research units to function with remarkable efficiency. An example is to be found in the Chemical Warfare Service, organized in the summer of 1917. Beginning with practically nothing, this Service equipped extensive laboratories and employed a personnel of many hundred persons in research and allied activities. Here again the colleges have rendered a service directly, since the most renowned teachers from the academic laboratories of the land are responsible for the organization and operation of this most important activity, and even the plant and grounds

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were turned over to the Government by a college, the American University of Washington.

Research in industrial laboratories is another important factor in the war crisis. Naturally such work is highly specialized along the lines defined by problems of manufacture. The increasing difficulty of securing industrial chemists is also a factor in cutting down the scope of such research, since it is often difficult nowadays to secure the technical force necessary to carry on even the routine work of the factory laboratory.

The only remaining field of importance in war research is furnished by the faculties of the colleges working in their own buildings. It may be of interest to give an indication of what is now going on in these college and university laboratories. Great detail is of course impossible, since most of the work is carried on with the strictest secrecy. The information which follows is taken from replies sent to the Bureau of Education by some forty American colleges and universities conducting war research of greater or less importance.

The total numbers of institutions reporting research in the various subjects are as follows:

Chemistry.	23
Physics, engineering, etc.	21
Bacteriology.	3
Home economics.	3
Biology.	2
Psychology.	2
Botany.	2
Mathematics.	1
Pharmacology and toxicology.	1

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This list can scarcely be assumed to be inclusive of all the college research in the country. It represents reports from 216 colleges, however, and should be fairly indicative of the fact that college research facilities are not being used to their full capacity. It does not include the extensive investigations now being carried on in agricultural and medical schools, nor does it include the work of five of the reporting institutions whose research is of such a nature as to forbid any publicity whatsoever.

Not unnaturally, chemistry holds the first place in college war research. This is due not only to the fact that probably a majority of the most important war problems are chemical in nature, but also to the fact that more colleges are well equipped with laboratories in this branch than in any other. Naturally gas research predominates, a fact due both to the vital importance of the subject and to the efforts of the Chemical Warfare Service, which employed many college laboratories in research, particularly during the early period, before its own adequate facilities had been developed. Explosives are also a subject of considerable investigation, while food is studied intensively, not only by the chemist, but also by the bacteriologist and the home-economics expert. At one institution a study is being made of various kinds of coal as war-emergency fuel. Otherwise the college laboratories of chemistry are chiefly interested in investigation of various basic chemicals necessary for the conduct of war. An important allied subject is the study of chemical compounds formerly produced largely in Germany, as, for example, the dyes. Germany has always predominated in organic prepara-

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tions, particularly for pharmaceutical purposes. Considerable credit is due to Professor Roger Adams of the University of Illinois, who has experimented extensively in this field and is at present supplying from his university laboratory a large part of the demand for rare organic compounds formerly imported from Germany.

In the realm of physics and engineering the research also follows the lines laid down by the most recent emergencies of war. Gas-engine work, aeronautic investigation and submarine-defense contrivances predominate. Here particularly the necessity for secrecy is extreme, and but little is known as to the progress and success of the work. It is not unreasonable to suppose, however, that the efforts of college physicists and engineers have been of vital importance here as elsewhere.

Government facilities for securing the coöperation of academic research have steadily improved since the beginning of the war. The first steps were taken early in 1917 by the Council of National Defense in its organization of the Committee on Engineering and Education and in its adoption of the National Research Council as its department of science and research. Later the Chemical Warfare Service, then organized under the Bureau of Mines of the Department of the Interior, began to coöperate with numerous college laboratories. Other departments of the Government have done likewise, as, for example, the Bureau of Standards, the Research Board of the Navy, etc. As before emphasized, however, considerable room still exists for expansion of this work and the future will probably witness closer coöperation.

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No more graphic picture can be drawn of the possibilities for war service by technical institutions than by giving as a concrete example a brief sketch of certain war activities of one of our great engineering schools, the Massachusetts Institute of Technology.³

WAR SERVICE OF FACULTY MEMBERS

In the *Department of Chemistry*: Professor W. H. Walker has been commissioned as a colonel in the Ordnance Department of the National Army, commanding Edgewood Arsenal; Professor J. R. Norris is a lieutenant-colonel in the Chemical Service Section of the National Army, overseas service; Professor S. P. Mulliken has been appointed major in the Chemical Service Section of the National Army; Professor F. G. Keyes, captain, Chemical Service Section, overseas service; Professor Augustus Gill, Consulting Expert, Quartermaster's Department, U. S. A.; Professor Miles S. Sherrill, Consulting Expert, Ordnance Department; Professor Robert S. Williams, Consulting Expert, Ordnance Department; Hugo M. Hanson, captain, Chemical Section; Dr. Willis R. Whitney on the Naval Consulting Board; Dr. A. A. Noyes, National Research Council; Dr. Henry P. Talbot, Consulting Board, Bureau of Mines, Gas Defense; Professor Henry Fay, Consulting Expert; Professor F. J. Moore, Bureau of Mines, Gas Defense; Professor Warren K. Lewis, Bureau of Mines, Assistant to Director of Gas Defense; Professor E. B. Spear, Bureau of Mines, Gas Defense; Professor E. B. Millard, Bureau of Mines, Gas Defense. In addition to the above, there are about fourteen members of our Instructing Staff, but not members of our Faculty, engaged in similar work.

³ The following material is adapted from a letter to the United States Commissioner of Education from an official of the Institute in answer to certain questions relating to war activities. It is not intended as a necessarily comprehensive outline of all the war activities of the institution, but rather as an illustration of certain kinds of service described in this chapter.

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In the *Civil Engineering Department*:

Prof. C. M. Spofford,	Consulting Engineer
“ A. E. Burton,	Director, Deck Officers’ Schools, U. S. Shipping Board
“ C. B. Breed,	Dean of the School of Military Aeronautics
“ G. E. Russell,	Consulting Expert
“ G. L. Hosmer,	Instructor, Deck Officers’ Schools
“ J. W. Howard,	Instructor, Deck Officers’ Schools
“ G. C. Whipple,	Mission to Russia
Five additional members of the Instructing Staff	

In the *Mechanical Engineering Department*:

Prof. J. C. Riley,	Major, Expert on Engines (in France)
“ E. F. Miller,	Consulting Expert, Director of Marine Engine Room Schools of United States Shipping Board
“ L. S. Marks,	Consulting Expert, engines
“ C. E. Fuller,	Government Schools
“ C. F. Park,	Executive work with Army and Navy Aviation Schools
“ H. W. Hayward,	Instructor, Aviation Schools
“ G. B. Haven,	Consulting Expert in materials, Aviation Schools
“ T. H. Taft,	Aviation Schools
“ G. W. Swett,	Aviation Schools
“ L. C. Smith,	Aviation Schools
“ A. E. Norton,	Aviation Schools
Twenty-four additional members of Instructing Staff	

In the *Mining Department*:

Prof. H. L. Smyth,	Consulting Expert
“ G. S. Raymer,	Consulting Expert
“ C. R. Hayward,	Instructor, Watertown Arsenal

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In the *Department of Architecture*:

Prof. Charles Everett, Lieutenant, Signal Corps
One additional member of the Instructing Staff

In the *Electrical Engineering Department*:

Prof. D. C. Jackson, Major, Engineering Corps
(in France)
“ C. W. Green, Captain, C. A. C.
“ A. E. Kennelly, Special mission to Europe
“ C. A. Adams, Engineering Commission
Twelve additional members of the Instructing Staff

In the *Department of Biology and Public Health*:

Prof. W. T. Sedgwick, on Council of National Defense
“ S. C. Prescott, Major, Department of Sanitation, U. S. A.
“ S. M. Gunn, with Red Cross in Europe
Six additional members of the Instructing Staff

In the *Department of Physics*:

Prof. E. B. Wilson, National Advisory Committee,
Subcommittee on Aeronautics
“ C. L. Norton, Consulting Expert
“ D. F. Comstock, Consulting Expert
“ W. S. Franklin, Instructor in Aviation Schools
Four additional members of the Instructing Staff

In the *Department of Geology*:

One member of the Instructing Staff is in the British Army

In the *Department of Naval Architecture*:

Prof. C. H. Peabody, President of Academic Board of the School of Military Aeronautics; administrative work in various other Army and Navy Schools at M. I. T.

SERVICE OF THE TECHNICAL SCIENCES

In the Department of Naval Architecture — Continued

Prof. William Hovgaard, Bureau of Construction and
Repair, Department of the
Navy, Washington

“ George Owen, Consulting Expert, ship de-
sign

Three additional members of the Instructing Staff

In the English Department:

Prof. H. G. Pearson, Special work with students in
connection with military
examinations

“ Frank Aydelotte, Committee on War Education
of Drafted Men

In the Department of Economics:

Prof. C. W. Doten, Expert, Production Depart-
ment, Emergency Fleet
Corporation of the United
States Shipping Board

“ E. H. Schell, International Shipbuilding
Corporation

In the Department of Modern Languages:

Prof. Frank Vogel, Special work, translation,
U. S. N.

“ E. F. Langley, Special work, translation,
U. S. N.

Two additional members of the Instructing Staff

In the Department of Physical Training:

Two members of the Instructing Staff giving instruc-
tion in the Aviation Schools

EMPLOYMENT OF PLANT FOR GOVERNMENT PURPOSES

The main uses of our plant for Government purposes have been as follows: first, for School of Military Aeronautics, the number in this school varying from 200 to 700; second, for the Naval Aviation Detachment, the number in this school being over a thousand; third, a School for Inspectors of Aircraft; fourth, a School for Aeronautical

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Engineers — at present there are thirty in this school; fifth, a School for Deck and Engine-Room Officers for the United States Shipping Board; sixth, a School for Radio Engineers.

Many researches have been conducted for the Government particularly in the departments of Chemistry, Physics, Mechanical Engineering and Aeronautical Engineering, but these are not of a character to be made public.

As an economic force the technical sciences have had ample opportunity to prove their almost illimitable importance. At the beginning of the war they were driving smoothly and powerfully the machine of industry. In their relation to war they resemble the engine of a great automobile, running free. The efforts of college-trained men have in one year thrown in the clutch, and now technology is geared to the machinery of war as well. It is the age of the engineer in war as in peace. Fortunately for our national safety, the technical expert of industry and education has quickly adapted himself to the demands of war.

CHAPTER VIII

THE EFFECT OF THE WAR ON THE COLLEGE CURRICULUM

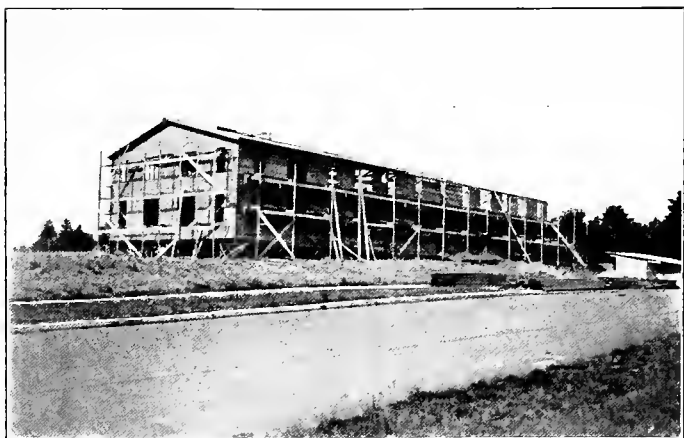
Pre-war tendencies — Rapid adjustment to war conditions — German language teaching — Its discouragement or abandonment — Factors affecting a permanent policy — War courses — Their vast variety and extensive development — Classified summary of courses offered — Academic credit for war courses — Physical training and college athletics — Military training.

The twenty years before the outbreak of the world war had brought about great changes in the college curriculum by reason of the development of science and the demands of industry. This period had witnessed the rise of the so-called vocational subjects to a commanding position and the great decrease of demand for the classics. Coincident with the fall of the classics had come a counterbalancing movement in favor of the modern languages, particularly of German and French. Spanish too had claimed the attention of American educators, particularly as trade and commerce began to be developed with the countries of South America, and the United States entered upon the broader international relations which followed the Spanish-American war. Within the past year, however, college courses have begun to shift with such kaleidoscopic variety as to dwarf the slower progress of the preceding period of peace in both extent and rapidity of change. Most of these adaptations have been due to an eager desire to make the colleges real training schools for the war emer-

THE COLLEGES IN WAR TIME AND AFTER

gency. Various branches of the Government have brought active influence to bear toward offering work specifically designed to train students for war service, and the response of the colleges both in adaptation of faculty and equipment, as well as in accrediting work, often of a type never before recognized for the college degree, is one of the most pleasing features of academic service in the war emergency.

The reconstruction of modern-language teaching now in progress is due not so directly to the desire for service as to the not unnatural feeling among students and educational administrators that the German language is too closely associated with the system against which we are fighting to remain an altogether welcome subject of study and instruction. The controversy for and against German teaching has raged hotly during the past year. The arguments on both sides have been so widely discussed in the public press that their repetition here is unnecessary. Whatever the immediate result in war time may be, the peace to come doubtless will in time crystallize out a policy which will avoid the extreme measures urged by either side during the heat of war. It may be regarded as certain, however, that all foreign languages will be forever barred from our elementary schools as a result of the present war, and that neither German or any other language will be allowed to spread insidious propaganda for any foreign system in the mind of youth at its most susceptible age. In fact, the war already has effected an almost universal dropping of German as a subject of instruction in the lower schools. The high schools in a certain measure still retain German, although



REED COLLEGE STUDENTS' ARMY TRAINING CORPS BARRACKS ON THE
FOURTH DAY OF CONSTRUCTION



UNIVERSITY OF PENNSYLVANIA SERVICE FLAG DRAPED OVER A MEMORIAL
DEDICATED TO THOSE WHO ENTERED THE SERVICE

EFFECT ON THE COLLEGE CURRICULUM

the tendency here as well is for the substitution of other languages. These changes in elementary and secondary schools will naturally affect college modern-language teaching profoundly. The colleges alone have, to a great extent, made no changes as yet in their policy of modern-language teaching, basing the retention of German upon its undoubted value as a part of the necessary scientific equipment of the trained man and offering it as a purely elective subject. In this attitude they have been encouraged by the opinion of the United States Commissioner of Education publicly expressed and, it should be stated as well, publicly assailed with the utmost bitterness by some opponents of this policy.

An inquiry recently circulated among more than two hundred American colleges of every type was phrased as follows: "Explain any change of policy adopted by your institution regarding modern language teaching." The result showed that 23 institutions had dropped German entirely, two had omitted it from the summer session, eight had offered it and found no students for its study, while 177 reported no change in their previous policy of offering German on the same basis as other modern languages. A number of tendencies, however, are worthy of mention. Most institutions reported a considerable falling off in the number of German students and a consequent dismissal of German instructors or their adaptation to instruction in other subjects of the curriculum. Many reported particular emphasis on German and French for military and practical purposes, while the few institutions in which German had still been a required subject now allowed the substitu-

THE COLLEGES IN WAR TIME AND AFTER

tion of some other modern language. One college, the University of Omaha, reported decreased attention to German and increased work in European history and study of constitutions (political science). Two southern colleges stated that they have ceased "encouraging" students to study German but still offer it in the curriculum. There seems to be a general tendency to prefer native-born American teachers and to inspect textbooks closely. A Wisconsin college reported that "German literary organizations have been disbanded," and a northern state university had "limited German authors and texts to Classical Period and those surely not giving rise to criticism." A Pennsylvania college which shall remain nameless answered: "We excell in the teaching of all modern languages," thus obviating any question of change of policy by the simple expedient of infallibility. The College of the City of New York has adopted the policy of reducing by one point the credit value of each course in the Department of German, possibly with a view toward actual discouragement of those intending to elect the subject. Of the entire number replying (210), only five institutions ventured any statement regarding the continuation of the study of German in American colleges. These statements are worthy of reproduction here:

The courses in French, German and Spanish have been made more practical than ever in order to help the students who will have to use their modern language in war time. We have made no change in our policy of continuing the study of modern languages. German is still a part of our curriculum. (*Johns Hopkins University.*)

EFFECT ON THE COLLEGE CURRICULUM

I am urging students with fair command of German to continue the study that they may interpret our ideals to Europe when the time comes. (*Tabor College.*)

The college has adopted no change of policy regarding modern language teaching. We give instructions in French, German or Spanish, and believe that the necessities of scientific work require the continuation of instruction in all these languages. (*Throop College of Technology.*)

We have made no change and are not planning to do so. In our judgment the need of a knowledge of the German language is greater than ever. (*McMinnville College.*)

During the coming year one period per week is to be added in the first year work in French, German and Spanish. (*Polytechnic Institute of Brooklyn.*)

Those colleges that have discontinued German evidently feel in most cases that giving reasons is superfluous. Some have discontinued the subject for the duration of the war, others apparently permanently. In some cases no introductory courses are to be given in the future, but students already studying are to be allowed to elect higher work in German until the completion of the course. While public sentiment is evidently at the base of the discontinuance of German, the immediate causes vary somewhat. In some cases, notably in the western states, the Legislature or State Council of Defense has forbidden further instruction in the subject. In others, the commercial and military necessities of French and Spanish aid in the displacement of German, while in many cases German has been dropped by reason of lack of demand on the part of students. The latter cause is all powerful, and one gets the impression that many colleges now offering German will soon have to dis-

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continue its teaching on account of lack of demand for the course.

The truest index of the changes which the war has brought in modern-language teaching is to be found in the actual number of students pursuing the various languages during the last two years, as reckoned for 210 American colleges:

	1916-17	1917-18	Per cent. increase or decrease
German.....	21,072	12,652	-40
French.....	17,129	19,352	+13
Spanish.....	1,736	9,579	+452

It would be idle to believe that the effect of the war on the college curriculum stops with the displacement of German from its former proud position. Nearly every subject of collegiate instruction, in the short space of one year, has been more or less profoundly affected by the military necessity, and nearly every college faculty in the land has been busy adapting its schedule of subjects to the emergency. The Bureau of Education, in answer to a request for a statement of changes in content or method of former courses or the addition of new courses for war purposes, has received replies from 225 colleges, 157 of which have some positive information to give regarding such changes. It is fair to assume that many of the remaining 68 institutions, not reporting actual war courses, have been careless in taking the trouble to compile an adequate list of such activities, since a number of the larger institutions of undoubted patriotic enthusiasm are included in the list of those

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failing to report any war courses. A few plead lack of resources, and others seem to have taken little part in the movement by reason of conscientious religious objection or unfavorable location.

The variety of war subjects taught in American colleges at the end of the first year of our participation in the war is nothing less than bewildering. It is naturally difficult to define a "war course" strictly. For example, Case School of Applied Science, whose war activities have been noteworthy, answers that "all courses are taught more or less with war in view." In the case of engineering schools and technical institutions of similar type, it is only natural that practically every subject of instruction can be made immediately applicable to war. One school, the University of Washington, has gone to the extent of adding an entire new college in naval, military and aeronautical science, offering three major lines of practical military service under the direction of Government officers. The University of Wisconsin issued an eight-page bulletin of war courses for the second semester of 1917-18. Yale has established a new three-year course devoted exclusively to subjects relating to the military career as an alternative to the regular college course. Reed College uses a dozen pages in its catalogue supplement to outline its war courses. The University of Porto Rico states that "war propaganda is introduced in all courses." At the University of South Dakota the Extension Division devotes most of its time to meet the conditions of war. To such an extent are the colleges turning their instructional facilities over to the immediate uses of the Nation. The average college, however, has

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to be content with somewhat less than the comprehensive programme mentioned above. Its efforts have been devoted to the establishment of "war courses," that is, it has either introduced new subjects germane to the present national situation or it has dressed up old courses in a military uniform. Naturally, the technical departments have been able to render the most immediate service.

The following is an attempt to summarize the war courses of 157 reporting institutions by classification under departments of instruction. The numeral immediately following the department or subject name represents the number of institutions reporting war courses in the corresponding department:

Chemistry, 21. Food, commercial and industrial, fuel, explosives and munitions, physiological.

Physics, 10. Optics, gas engines.

Mathematics, 6. Preparation for officers, ballistics, range finding.

Radio Work, Telegraphy, 40. The work varies from the mere mechanical training of operators to the most advanced types of electrical engineering. Its adoption by so many colleges is due to the efforts of the Signal Corps during the early period of the war, and later to the activities of the Federal Board for Vocational Education.

Military Engineering, 12. Surveying, military topography, road and bridge building.

Ship Construction, Navigation, and Ocean Transportation, 2. Considerable active work has been done by the Government to stimulate training of this sort in the colleges. Lehigh University offers a new three year course in "Ship Construction and Marine Transportation." Its object is, "first, to train men in the design and construction of ships; and second, having knowledge of ships, to prepare them to enter the broader field of ocean transportation and foreign commerce." The course combines engineering

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training with studies in business administration. Since it represents a virgin field for college training and bears so directly upon the war situation, the following description is quoted from the University's announcement:

"The first year is devoted to mathematics, physics, English, modern languages, chemistry and mechanical drawing, which are a necessary preparation to the technical work in the second and third years.

"The second year is devoted largely to the study of science and subjects of general engineering. Among the latter are strength of materials, machine design, metallurgy and steam engineering. To arouse the student's interest in, and fit him for, the study of marine transportation and foreign commerce of the following year, he begins in this second year his work in economics and business law.

"The work of the third or last year may be classified under the three divisions of naval architecture, marine engineering and foreign commerce. Naval architecture includes studies in the design and construction of wooden, steel and concrete ships, being largely concerned with the study of hulls. Instruction in marine engineering is treated under the head of steam engineering, marine engines and marine steam turbines. As preparation for engaging in international trade considerable time in the third year is devoted to accounting, banking, foreign commerce, foreign exchange and marine insurance.

"Physical exercise and military drill are required throughout the three years.

"To give to men taking this course a direct contact with the construction of ships and ship machinery they will be placed in shipyards during their summer vacations, one summer being devoted to machine shop work and another summer to the construction of hulls."

Aeronautical Science, 10. Training for aviation, aerodynamics, gas engines.

Biology, 12. Sanitation, hygiene, bacteriology.

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English, 4. War literature, composition work on democracy.

Political Science, 10. Study of constitutions, modern imperialism, diplomacy of the war, Russian Government, international relations, world reconstruction.

History, International Law, 29. Military history, history of the present war, development of democracy.

Economics, Sociology, 14. War finance, business methods in foreign trade, army administration, conservation of natural resources, statistics, labor in war time, training employment managers.

Agriculture, 14. Diseases of food plants, increased production, gardening, garden supervision, practical farming.

Red Cross Courses, 23. Surgical dressings, first aid, home-service institutes.

Home Economics, Food Conservation, 90. This is the most general of all college war courses, a fact undoubtedly due to the vigorous efforts of the United States Food Administration, which published and distributed ready-made outlines for courses. Three institutions report courses in camp cookery.

Nursing, 10. War nursing, home nursing.

Modern Languages, 32. French and German for conversational and military purposes ("Trench French!"), commercial Spanish.

Secretarial Work, Stenography, 18. Many institutions have felt the need of preparing students for entrance into the civil service, particularly on account of the war extension of departmental activities at Washington and the attendant call for clerical workers.

Psychology, 2. Psychology of war, mental tests for war service.

Philosophy, 2. Philosophy of the war and state.

The following war courses are offered by one institution each: astronomy, meteorology, geology, international ethics, photography, public speaking in American ideals, camouflage.

The outline of war courses just given takes no account of the great field of medicine nor does it deal

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with military training, since each of these topics deserves separate consideration. In most cases the colleges have given without question regular credit towards a degree for specialized war work of the sort enumerated. One exception definitely noted is Radcliffe College, which states that its short courses in civilian relief work, dietetics and gardening are specifically not to count for a degree. Doubtless many other colleges share this feeling, but the tendency has been distinctly toward a patriotic generosity in allowing credit for work which in other times might scarcely be admitted to the curriculum. The war has gone a long way toward breaking down academic barriers.

The field of physical training perhaps has been more radically modified by war than any other. Its practical demonstration, its touch with life, has always been through the medium of intercollegiate athletics, and these have had a difficult existence indeed since the United States entered the war. In a previous chapter mention was made of the first war reaction on athletics as regards the colleges themselves. When the interrupted season of the spring of 1917 had drawn to a close, it became evident to the officials of the National Collegiate Athletic Association that some definite, official action must be taken regarding the continuance or discontinuance of intercollegiate athletics in the United States, and a meeting was called at Washington on August 2, 1917, which was attended by representatives from more than fifty colleges and universities, largely eastern institutions. Representatives were present also from the Ohio Conference and the Pacific and Northwest Conference.

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Reports showed that the large majority of colleges favored the continuance of athletics, the notable exceptions being Harvard, Yale and Princeton Universities, which reported cancellation of their football schedules, and the University of West Virginia, which favored discontinuance for the present of intercollegiate sports. The general sentiment favored the retention of the rule barring freshmen from participation, although Dartmouth reported that freshmen there would be allowed to play during the continuance of the war. Secretary Baker, who addressed the meeting, pointed out the necessity of athletics in the training camps and urged their continuance in colleges, with added emphasis on the physical training of the whole student body. Finally the following resolutions were unanimously adopted:

Whereas, college athletics, as stated by Secretary Baker in his address to this Conference, are of great use in developing the qualities of a good soldier,

Therefore, be it Resolved that we recommend to the colleges

First, That athletic sports be continued during the coming year, with an increased effort to develop athletics for all students rather than for a chosen few.

Second, That the schedule for intercollegiate sports be carried out so far as local conditions allow, care being taken not to interfere with the military training of the students or to conflict with the military interests of the nation.

Third, That there be no pre-season coaching during the coming academic year.

Fourth, That training tables be given up.

Fifth, That professional coaching and the expenses incidental thereto be reduced to a minimum.

Sixth, That the number of officials at intercollegiate games and their fees be kept as low as possible.

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And further, be it resolved that the Association reiterates its belief in the eligibility rules which it has already endorsed, including the Freshman rule, and recommends to the colleges that there be no lowering of eligibility standards because of present conditions.

This official stand served as a distinct encouragement to all the colleges, and most of them continued intercollegiate athletics more or less successfully during the school year of 1917-18. There is, however, a very natural tendency to turn physical training of all kinds into military channels and this has extended to athletics as well. At the December, 1917, meeting of the National Collegiate Athletic Association the following resolution was adopted, among others: "That athletic sports be made subservient to the work of military preparation, and be made therefore an essential factor in military training."

The entire subject of military training had been growing meanwhile to assume a position of ever increasing importance in the college curriculum. About one-third of the colleges already had the Reserve Officers' Training Corps units, and, as early as the spring of 1917, many other institutions organized military drill informally, using the best material available as drill officers. By the fall of 1917 the great majority of colleges had adopted military drill, often modifying schedule and curriculum materially in order to make place for it and in most cases giving credit toward the degree for such work. While drill, in many cases compulsory, quite generally took the place of formal physical training in the gymnasium, it did not succeed in replacing athletics, and schedules of games were played with considerable regularity

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during the school year 1917-18 by the great majority of colleges, large and small.

As the demand for military training grew more insistent in the colleges, the problem of adequate supervision grew more complex. The war department had officially signified its inability to furnish officers and equipment beyond, possibly, a slight extension of the R. O. T. C. plan. Our participation in the war had not yet become general enough to supply an adequate number of invalided officers for this purpose, as had been the case in Canada. Early in the spring of 1918, the United States Bureau of Education issued a questionnaire on the subject to the colleges not having R. O. T. C. units, in order to ascertain for the use of the War Department's Committee on Education and Special Training the actual sentiment of the colleges regarding governmental control of military training in higher educational institutions. The result was surprising in the overwhelming majority which it showed in favor of the plan. An analysis of the replies follows:

GOVERNMENT CONTROL OF MILITARY INSTRUCTION

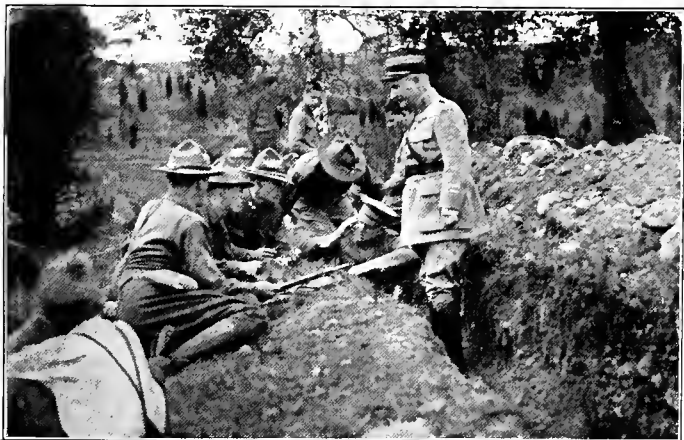
Opinions Favoring

Number of colleges believing that:

It will help in obtaining universal military training.	5
It will improve discipline.	16
It will promote greater loyalty and coöperation with the Government.	22
It will beget respect for authority.	3
It will guarantee first-class equipment, uniformity of standards, and high class training.	46
It will improve physical development of students. .	9



HARVARD UNIVERSITY RESERVE OFFICERS' TRAINING CORPS MEN AT
BAYONET COMBAT PRACTICE



HARVARD UNIVERSITY RESERVE OFFICERS' TRAINING CORPS MEN
RECEIVING INSTRUCTION IN TRENCH DIGGING FROM A MEMBER
OF THE FRENCH MILITARY MISSION AT FRESH POND

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It will guarantee more coöperation on the part of students on account of Government prestige....	30
It will be of financial help to the colleges and to the students.....	12

Opinions not Favoring

Number of colleges fearing that:

The college programme will be upset or crowded..	14
A military spirit will be created.....	3
Military trainers will have an immoral influence on the college.....	2
Total number of favorable opinions.....	143
Total number of unfavorable opinions...	19

Forty colleges have given two or three opinions.

Ten of the colleges fearing the overcrowding of the programme favor the question in other respects.

A short time afterwards came the announcement of the Committee, signed by Secretary Baker, of the comprehensive college military-training plan to be adopted in the fall of 1918.¹ It was hailed with joy by the great majority of American colleges, and on July 18 several thousand selected students and faculty members assembled at various training camps throughout the country in order to undergo two months of intensive training to fit them as subordinate instructors and officers under the new plan.

The college curriculum at the end of a year and a half of war was still in the midst of the experimental phase of a great change. Far reaching and almost universal effort was being put forth to adapt it to the necessities of war. In recapitulation may be mentioned as the main phases of change: the reformation of modern-language teaching; the adaptation of the work of all departments, chiefly of the scientific ones,

¹ See Chapter VI.

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to the military situation; the introduction of entirely new subjects and material of instruction into the curriculum; and, finally, the adoption of military drill as the main expression of physical training. Peace may again bring back to the colleges a measure of their old sufficiency and self-satisfaction with the traditional, but the pre-war development of science and industry and the sweeping changes which the war itself has wrought will leave a permanent mark upon the college curriculum.

CHAPTER IX

THE EFFECT OF THE WAR ON ACADEMIC CONDITIONS AND PRACTICES

Academic traditions annulled by war—Revision of the calendar—The four-quarter plan—Condensing the school year—Maintenance of faculty members in war service—Government requisition and use of college plant and equipment—Reduced enrollment—Losses of students—Attendance at technical and professional schools—Attendance at engineering schools—Losses of engineering students an alarming factor—Academic credit for military service.

In no part of college life is tradition so firmly established as in the indefinable realm of academic condition and practice which surrounds the administration of the institution. Matters affecting calendar, academic credit, faculty administration and custom—all these things are in most institutions rigidly governed by long established usages. It is infinitely easier to change the contents of the college curriculum than it is to change some of the attendant circumstances of its administration. For example, because most colleges begin in September and close in June, and because they have done this for long years, the "summer session" has always been an anomalous and somewhat doubtfully regarded part of the college year, scarcely on a par with the "regular" terms of work. Just as was the case with the curriculum, war has brought the necessity of change in most other customs and usages of college life. Its first effect became apparent on the college calendar.

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European traditions many years ago decreed for the American college a vacation period of three or four months, during which the student was originally supposed to devote himself to independent study and preparation. It is needless to point out the fact that in America the summer vacation rarely ever serves the undergraduate for any purpose of this sort. According to his circumstances, he either indulges in recreation or pursues some gainful occupation which will enable him to finance himself for another academic year. In fact, the latter custom has become so general as to furnish the best argument for the retention of a "vacation" period originally intended for quite other uses. It is a perfectly natural result of the development of education from an exclusive to a democratic basis. The war, with its imperative call for service of every kind, strangely enough intensified the arguments both for and against the summer vacation. On the one hand was the necessity for turning out trained leaders and scientists as quickly as possible; on the other, the equally great necessity for increased production in factory and field. The first argument spoke for a practically continuous college year — the so-called "four-quarter plan." The second argument was so diametrically opposed as to call for the exact opposite, namely, a longer summer vacation than heretofore customary. The four-quarter plan advocates answered the challenge of their opponents by pointing to the possibility offered by their system of using as vacation any one of the quarters desired. The summer-vacation adherents pointed in return to the manifest saving of expense allowed by concentration of the work into

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nine months instead of 12. It is interesting to examine the actual reaction of the American college to these new forces, before the establishment of the Students' Army Training Corps imposed the general adoption of the four-quarter plan.

A total of 230 colleges of all types reporting on the subject of calendar prior to the establishment of the S. A. T. C. showed that 111 had made no modification in their regular calendar plan, the plain assumption being that the pre-war summer vacation was left undisturbed. Of the remainder, 107 had lengthened the summer vacation by condensing the school year, and only 12 had adopted the four-quarter plan.

Of the institutions which kept the old system, there is little to be said. Among them were such important representatives as Harvard, Vassar, and a number of other eastern colleges. The colleges for women had perhaps not felt the economic, and certainly not the military, urge so strongly as the others; hence they were largely represented in this class. A number of schools intimated that the matter of calendar change was being seriously considered. A few frankly believed a change inadvisable, as, for example, Shurtleff College, which stated: "There has been none [that is, no change] as we have felt that we could best serve by keeping our regular semester." Generally speaking, decisions once taken were final, and in only one case was a tendency reported to return to the old system after having tried out the new; Hope College said: "For the year 1917-18 spring vacation and several holidays were eliminated and the year closed two weeks earlier. The old schedule

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will be followed next year without change — too great disturbance of work has resulted.”

Those colleges which had lengthened the summer vacation furnished some interesting facts. It is evident that most schools did not begin to react to the necessity for change until the beginning of 1918, for in many cases the modifications were begun during the second semester of the school year of 1917-18. The reasons given for making any changes were all dictated by war considerations. Chief among them was the necessity of putting the student body at work for as long a continuous period as possible in agriculture and industry — particularly war industry. Other reasons mentioned were the call of students to training camps and the necessity of making room for the training detachments sent by the Committee on Education and Special Training. In some few cases the question of condensing the college year was submitted to a vote of students and faculty. The means used to accomplish the final object are interesting, comprising as they do omission or shortening of vacations within the school year, combination of examinations with Commencement Week, six-day-a-week schedules, and so-called “intensive work.” In most cases the customary number of working days for the year was maintained, that is, the actual time for work was not shortened. Two institutions, however, reported a reduction from 36 weeks to 34 weeks, and the same thing may be safely presumed in other cases where the condensing process seems to have effected a saving of more than three or four weeks. The process was hindered at a few institutions by the coal scarcity, which neces-

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sitated a closing of college for abnormally long periods during the winter. The most consistent actual shortening of the college year was to be found among the agricultural schools, whose students were needed on the farm early in the spring. On the other hand, certain professional schools, particularly medical colleges, and a few engineering colleges (Rensselaer, Stevens, etc.) found it advisable to continue during the summer in order thus to graduate their students sooner. In fact, there was a well marked tendency to condense the four-year college course into three years, as has long since been done at Clark College and is now exemplified as a war emergency at Lehigh.

In all, 12 institutions had adopted the four-quarter plan prior to the establishment of the S. A. T. C., nine of which are located west of the Mississippi River. The possibilities of "speeding up" are perhaps best illustrated by the statement made by Throop College of Technology:

The college year has been divided into four quarters, instead of two semesters, and continues through the summer. . . . The college now speeds up the work of the junior and senior years so that students who are juniors in the autumn of one year graduate after four quarters of work in September of the following year, nine months before they would normally graduate, their work continuing through the summer of this last year. We admit a freshman class at the mid-year and continue their work through the summer quarter, giving them a year's work between February and September, so that they can enter the sophomore class the autumn following their admission to college.

In a few institutions the four-quarter plan came naturally as a development of the summer session.

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Alfred University said: "In 1918-19 we return to the three-term plan, replacing the semester plan used this year. The summer session will be developed for a fourth term — now it is $\frac{1}{2}$ term." An interesting adaptation of the schedule was being tried at Ashland (Ohio) College which reported:

There is already a shortage in the factories of the city and farm labor is decidedly scarce. The faculty of the college has conferred with the manufacturers and merchants of the city, and a plan is in the making whereby students will spend the forenoon of each day except Saturday in the school and the afternoon in the stores and factories or on the farms.

Among the most difficult of all questions of college war policy is that of continuance of relation between the college and the faculty member in war service, either military or civilian. Nearly every college in the country has been represented by faculty members in some type of service. If the periods of service were short, the general policy seems to have been to continue the full salary, particularly if the instructor received no salary from the Government for his war work. If the service consisted of military enlistment for the period of the war or civilian service for an extended period, most institutions have granted leaves of absence, although at a few it is reported customary for the instructor to resign. Leaves of absence are often given with the provision of reemployment if the situation allows. Strangely, few colleges seem to consider faculty members in war service as still integral parts of their institutions.

From a total of 225 colleges reporting, only 11 state that the salary is continued during absence on

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war duty. Twenty-one have adopted the policy of making up the difference between the Government pay and the former college salary, while 85 state definitely that the salary ceases on leaving academic service. One hundred and four institutions indicate that no general policy has been adopted, and in most cases it is to be inferred that salary is not allowed in deciding individual cases. A few responses to the question: "What arrangements have you adopted regarding leave of absence and continuation of salary for faculty members in war service?" will illustrate the commoner tendencies. For obvious reasons these replies are not identified by the name of the institution:

One member of the faculty in Y. M. C. A. work in France. All of his salary above the amount paid to substitute is paid to his family.

We are allowing leave without salary, as we are so hard hit by the war that our continuation is problematical.

Faculty members in war service have been granted leave of absence and the privilege of retaining their homes which are college property. Salaries have not been continued.

Not allowed by state law to pay salary to teachers on leave of absence. All teachers desiring leave of absence to enter military or naval service have been granted same. Wherever possible they will be invited to return to the University after the war. (From a state university.)

Eight members have gone into war service. In only one instance was leave of absence granted. No continuance of salary.

We have given all members who are in war service full pay less what they receive from the Government, and in some cases have added to the Government pay.

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The members of our faculty who are going into the service receive even better salaries than they receive here, and as we are obliged to employ others to take their places, we have not felt able to continue.

During past year the college made up any deficit of salary of men on leave engaged in Government work. The policy will probably be discontinued this year.

Ten faculty members are now in war service. They have indefinite leave of absence without pay. It is understood that they will have first call for their former places just as soon as the good of the college service will permit.

A special case is made of each faculty member going into the service. Mr. — (Food Administrator), leave of absence with full pay; Mr. — (Red Cross work in France), full pay; Mr. — (Y. M. C. A. work), half pay. Others in regular service, no pay.

A vote of salary sufficient to raise the salary received for war work to the salary received for college work has been passed in several cases, but the vote is for one year only and is likely to be strictly limited in the future to faculty members in the Army and Navy.

A member of the faculty may be given permission to work for the Government without college salary, provided that, in the opinion of the President, the work under his charge in the college shall not suffer thereby.

Those of our faculty who have gone into war service have resigned from their positions, and their places have been filled by others.

Our teachers are all ministers of the Gospel.

The variety of the above illustrations is significant of the fact that it is difficult for any institution to adopt anything more than a very general policy in dealing with faculty members in war service. The

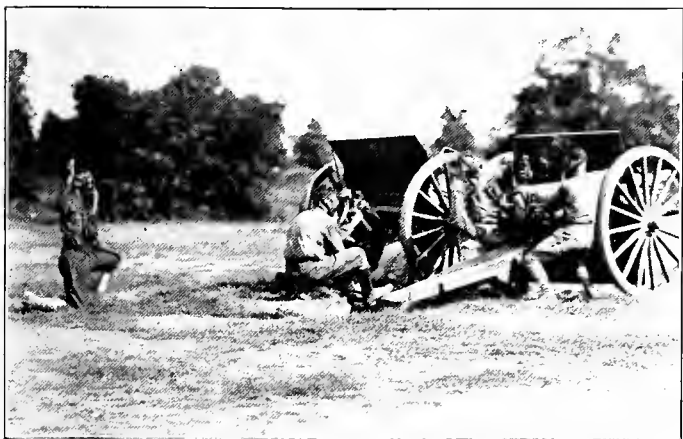
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varying conditions of nature and length of service, character and financial strength of the institution, payment for war service, etc., seem to justify most institutions in deciding by individual cases. The main thing after all is the apparent unanimity in willingness of college and instructor to make every sacrifice for the winning of the war.

The needs of the Government have requisitioned not only faculty members but also in many cases the physical equipment of the colleges. This has naturally led to much readjustment of academic conditions. The most extreme example is to be found at the American University at Washington, which has turned over to the uses of the Nation most of its campus and buildings, practically ceasing its own work in consequence. The ground thus gained is used by the Government for training-camp purposes and the buildings for chemical research work. In response to the request of the Committee on Education and Special Training, more than a hundred colleges have given to the War Department the use of various buildings and shops to train men in the trades during the summer. In most cases this has caused considerable readjustment, although but little interruption to the regular work. From the very beginning of the war the Government has maintained training schools at various large universities for different branches of the service. In some cases the numbers so handled considerably exceed those of the regular student body, and the entire makeup of the institution has undergone a radical change. Many colleges have offered their entire facilities to the Government but have not yet been called upon for

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service. Others have rendered help of various kinds. Worcester Polytechnic Institute's commercial shops are fully occupied with the actual manufacture of machinery for Army and Navy, and the testing laboratory with testing materials for manufactories engaged in war work. The University of New Mexico gave up its campus during the summer as a training camp for the National Guard and a mobilization station for the National Army, and the gymnasium of the Montana State School of Mines is used as a United States Army barracks. Grinnell College loaned wireless equipment to companies at Camp Dodge, and groups of men from the same camp were received as students in chemistry and bacteriology at Drake University. The University of Utah has a department of the Bureau of Mines where considerable research work is done, the University of Akron has a branch laboratory of the Bureau of Standards for testing rubber tires bought by the Government on specification, and the chemical laboratory at Lafayette College is used for testing by Government chemists. The nature of much of this work is necessarily secret. Thus, for instance, one southern institution has furnished facilities for a Government radio experiment station, the nature of whose work is unknown to the institution itself. The University of Washington gives up part of the campus as a United States Naval Training Station, also recitation rooms and laboratories. At the University of Wisconsin the work of the Forest Products Laboratory has been trebled and has overflowed into a number of buildings. Many colleges have provided rooms for the activities of the local Red Cross; at Fargo College



YALE UNIVERSITY: FIELD ARTILLERY DRILL WITH GAS MASKS, SUMMER OF 1918



YALE UNIVERSITY BATTERY OF FRENCH 75'S IN ARTILLERY HALL, OPENED IN THE FALL OF 1917 FOR SUB-CALIBRE FIRING. THE GUNS WERE MANNED BY FACULTY R. O. T. C. MEN, WITH VETERAN FRENCH AND CANADIAN OFFICERS AS INSTRUCTORS

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an entire floor of the library building has been set aside for this purpose. At Washington the rapid expansion of Government work caused Georgetown University to give up half of its Law Building to the War Department. Harvard, Yale,¹ Princeton, and some other universities have practically turned over their resources towards training men in war activities. As time goes on, it seems inevitable that the great reserves of college plant and equipment in this country will be called upon to an ever increasing degree for such service.

No factor of college life has been so uncertain since our entrance into the war as student attendance. The first call to arms affected not only the older students but the younger ones as well, since the selective-draft principles had not yet been formulated and volunteering held sway. The summer of 1917 represents the period of division between the first rush of thoughtless enthusiasm and the maturer second thought of a country awakened to the importance of maintaining a supply of trained men. Accordingly the student loss of the first period can best be estimated by comparing the registration for the fall of 1916 with that for the fall of 1917, given in the accompanying table (page 129).

It is natural that professional and graduate students should show the greatest losses, with seniors following closely. These reductions of from 30 per cent. to 40 per cent. are the largest borne by educa-

¹ Yale has spent over \$250,000 in military instruction and equipment since the beginning of the war. It has erected the best equipped American artillery armory outside of Fort Sill, Oklahoma, and possesses a good equipment of French and British guns.

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tional institutions in a like period of time since our entrance into the war. When the students returned to work in the fall of 1917, the military status of all was definitely fixed. Those under 21 years of age had, as a general thing, settled down to at least another year of college work, although patriotic spirit ran so high in many college communities as practically to force enlistment at much earlier ages. Those students over 21, if they returned at all, did so with the expectation of being called soon, and many enlisted before the call came. This is the chief factor in the loss during the school year of 1917-18. That this loss was rather less than greater than that of the preceding period is evident from the following statement of the number of institutions reporting the indicated percentages of war loss of men students from September, 1917, to April, 1918:

10 per cent. or less.....	28
11 per cent. to 20 per cent., inclusive.....	86
21 per cent. to 30 per cent., “ 	34
31 per cent. to 40 per cent., “ 	17
41 per cent. to 50 per cent., “ 	9
More than 50 per cent.....	6
<hr/>	
Total.....	180

It is evident from the above that nearly two-thirds of the reporting institutions suffered losses of 20 per cent. or less, nearly one-sixth being under 10 per cent., and only a little more than one-sixth being over 30 per cent. Although this statement is not tabulated on the same basis, nor for the same number of institutions, as the table opposite, it is perhaps safe to assume that the average loss during this second

THE EFFECT ON ACADEMIC CONDITIONS

EFFECT OF THE WAR ON 313 COLLEGES OF LIBERAL ARTS

(United States Bureau of Education)

Classes	Fall of 1916	Fall of 1917	Gain or Loss			
			Numbers		Per cent.	
			+	-	+	-
Freshman class:						
Men.....	22,531	18,860	.....	3,671	.....	16.3
Women.....	17,442	17,556	114	.....	0.6	.....
Sophomore class:						
Men.....	14,613	12,505	.....	2,113	.....	14.4
Women.....	11,613	11,882	269	.....	2.3	.....
Junior class:						
Men.....	10,692	8,157	.....	2,535	.....	23.7
Women.....	8,961	9,911	130	.....	1.4	.....
Senior class:						
Men.....	8,712	6,149	.....	2,563	.....	29.4
Women.....	7,285	7,897	611	.....	8.4	.....
Special and graduate students:						
Men.....	4,043	2,419	.....	1,624	.....	40.1
Women.....	3,273	2,919	.....	354	.....	10.8
Total men.....	60,596	48,090	.....	12,506	.....	20.6
Total women.....	48,575	49,345	770	.....	1.6	.....
Total students...	109,171	97,435	.....	11,736	.....	10.8

period is not so high as the 20.6 per cent. average of the initial period. Two institutions showed losses of less than five per cent., while the following reported losses of more than 50 per cent.: Lombard, 67 per cent.; University of Detroit, 65 per cent.; Colby College, 60 per cent.; Denison, 55 per cent.; University of Omaha, "more than 50 per cent."

The technical and professional schools present a special problem. Here the initial loss was greatest. The accompanying table (page 130) furnished by the Bureau of Education shows that schools of medicine alone showed an increase for the fall of 1917 over that of 1916, evidently due to the formation of the Medical Reserve Corps. In nearly all other types of schools the loss of men considerably exceeded the 20 per cent. average of the liberal-arts colleges.

THE COLLEGES IN WAR TIME AND AFTER

ATTENDANCE AT TECHNICAL AND PROFESSIONAL SCHOOLS

Colleges	Num- ber report- ing	Enrollment by sex			Increase (+) or decrease (-)		Total enroll- ment		Increase (+) or decrease (-)	
		Sex	1916	1917	Number	Per cent.	1916	1917	Num- ber	Per cent.
Colleges of agriculture.....	38	Men.....	11,799	7,680	-4,119	-34.9	11,799	7,680	-4,119	-34.9
Colleges and schools of engineer- ing.....	94	Men.....	25,802	21,048	-4,754	-18.4	25,802	21,078	-4,748	-18.4
		Women.....	24	30	6	+25.0				
Colleges and schools of mines....	18	Men.....	1,584	1,175	-409	-25.8	1,584	1,175	-409	-25.8
Colleges and schools of educa- tion.....	36	Men.....	1,432	989	-443	-30.9				
		Women.....	5,350	5,166	-184	-3.4	10,478	9,507	-971	-9.3
		Sex not reported.	3,696	3,352	.....	.....		
Schools of medicine.....	43	Men.....	5,472	5,652	+180	+3.3	6,329	6,521	+192	+3.0
		Women.....	186	220	34	+18.3				
		Sex not reported.	671	649	.....	.....		
Colleges and schools of architect- ture.....	13	Men.....	1,176	824	-352	-29.9	1,196	847	-349	-29.8
		Women.....	20	23	3	+15.0				
Schools of law.....	58	Men.....	8,342	4,994	-3,348	-40.1	9,757	5,703	-4,056	-41.5
		Women.....	131	160	29	+22.1				
		Sex not reported.	1,186	549	.....	.....		
		Men.....	3,982	3,157	-825	-20.8	4,102	3,264	-838	-20.4
		Women.....	72	68	4	+5.6				
Colleges of dentistry.....	15	Sex not reported.	48	39	.....	.....		
		Men.....	1,187	870	-317	-26.7	1,547	1,137	-410	-26.5
		Women.....	87	34	53	+60.9				
Colleges and schools of theology	25	Sex not reported.	273	233	.....	.....		
Colleges of veterinary medicine.	8	Men.....	525	348	-177	-33.7	525	348	-177	-33.7
		Women.....	1,270	982	-288	-22.7				
Colleges of pharmacy.....	25	Men.....	117	172	55	+47.0	2,165	1,901	-264	-12.2
		Women.....	778	747	.....	.....		
Colleges of home economics.....	26	Sex not reported.	2,793	2,675	-98	-3.5	2,793	2,675	-98	-3.5
Schools of commerce or business administration.....	27	Men.....	4,080	3,458	-622	-15.2	5,019	4,469	-550	-10.9
		Women.....	420	581	161	+38.3				
		Sex not reported.	519	430	.....	.....		
Colleges and schools of journal- ism.....	6	Men.....	342	177	-165	-48.3	420	277	-143	-34.0
		Women.....	78	98	20	+25.7				
Colleges of forestry.....	6	Men.....	484	236	-248	-51.2	484	236	-248	-51.2

THE EFFECT ON ACADEMIC CONDITIONS

The engineering colleges, strangely enough, show a loss of only 18 per cent. for the first period. A table showing conditions during the second period, that is, the school year of 1917-18 follows:

ATTENDANCE AT ENGINEERING COLLEGES
(United States Bureau of Education)

Branch of engineering	Number now actually in attendance (May, 1918)	Number in attendance at beginning of this school year	Number in attendance at end of last academic year
General.	2,287	3,302	2,582
Architectural.	524	617	871
Chemical.	2,322	2,806	2,387
Civil.	2,769	3,633	3,629
Electrical.	3,123	4,014	3,894
Marine.	136	87	110
Mechanical.	3,454	4,390	4,269
Metallurgical.	172	167	153
Mining.	566	763	787
Sauitary.	33	36	58
Textile.	83	165	132
Agricultural.	26	40	15
Sugar. . . . .	....	74	68
Administration.	203	188	270
Electrochemical.	44	37	55
Aeronautical.	2	5	....
Fire protection.	17	17	34
Ceramic.	48	62	65
Total.	15,809	20,403	19,379

The totals just listed show that approximately 1,000 more engineering students were in attendance in September, 1917, than in June, 1917, but that by May, 1918, this total attendance had decreased by about 25 per cent. This gives particular reason for anxiety in view of the fact that an Engineers' Reserve Corps was established during the early part of this period for the express purpose of keeping engi-

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neering students in school. Such an unprecedented decrease in a training subject so vital to the country's needs during and after the war is without question the most alarming fact in the present abnormal condition of higher education.

The question of proper allowance for academic credit for military service has had to be considered by every college in the land. The sweeping outburst of patriotism which characterized entry into the war both here and in Canada led to certain extremes which second thought corrected. Thus, the University of Toronto began by giving one full year's credit to those who enlisted, but later decided to consider each case individually on the man's return. American colleges quite generally endorsed the same principle of academic credit for military service, but only in rare cases was more than one semester's credit allowed and, generally, not more than half a semester's credit. The practice, quite general in 1917, of allowing college credit for agricultural service seems to have practically disappeared in 1918, except of course in agricultural colleges. In March, 1918, the National Conference Committee on Standards of Colleges and Secondary Schools recommended the following policy in dealing with cases of military service:

1. In the judgment of the National Conference Committee, military, naval, or other national service is not, and should not be regarded as, a substitute for, or equivalent of, collegiate or professional education, for the purpose of credit toward graduation.

2. The Committee recommends that the Colleges and Universities issue certificates to undergraduates who leave

THE EFFECT ON ACADEMIC CONDITIONS

college before graduation to engage in national service, and who creditably perform such service; and that a list of those receiving such certificates be included as a special group in the published lists of Alumni.

As a matter of actual practice, however, nearly all colleges seem to be granting credit to seniors for fractional parts of a semester omitted on account of service in the Army or Navy. As long as such losses of work are nominal rather than actual, the action can scarcely be criticized, but there is a growing feeling among both teachers and students that the college degree can stand for only one thing — academic accomplishment; and that a degree based on any other consideration is no better than a counterfeit.

CHAPTER X

THE COLLEGES AND THE GOVERNMENT

Special provision required for medical and technical education — Creation of the Enlisted Reserve Corps — Medical and Dental Enlisted Reserve Corps organized — Regulations governing enlistment in the Engineer Enlisted Reserve Corps — Enlisted reserves in the Veterinary Corps, Signal Corps, and Quartermaster Corps — College men in national war service — Faculty members in important executive positions — Their permanent influence on the relations between Government and the colleges — A Federal Department of Education proposed — Diverse and uncorrelated educational agencies of the Federal Government — Special war-time demands upon the schools — Functions of the proposed Department of Education — Importance in international educational relations.

An effort has been made in preceding chapters to trace the gradual crystallization of sentiment in favor of the continuance of higher education during the war and the growing coördination of the scattered initial attempts to achieve this end. Although the original draft age limit of 21 years did not seriously menace the continuance of the academic undergraduate colleges, it was felt necessary to make special provisions for technical and medical education. This resulted in the establishment of the various enlisted reserve corps already mentioned. Although they represented at best only patchwork legislation and failed to determine the Nation's attitude toward higher education in general, they served their purpose during the first year and a half of our participation in the war, until the lowered draft age of August, 1918, required the adoption of a new policy to cover

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the conflicting claims of national defense and collegiate training. The story of the various enlisted reserve corps is interesting since it indicates clearly a slowly awakening public realization of the essential necessity of certain types of training for war service and the *post-bellum* reconstruction period.

The National Defense Act of June 3, 1916, created besides the Reserve Officers' Training Corps, an Enlisted Reserve Corps. In response to requests of the medical profession and others, the President authorized regulations interpreting the Act to include privileges of enlistment in the reserve corps, under such regulations as the Surgeon-General should prescribe, to medical students. The Provost-Marshal-General thereupon instructed local boards to accept certificates of enlistment in the medical reserve as placing the students in Class Five. The regulations creating the Medical Enlisted Reserve Corps were revised by the Surgeon-General on September 4, 1917, and it thus became the first of the student enlisted reserve corps. A little later, by Act of Congress, dental students were granted a similar privilege of enlisting in the reserve corps.

The next step was, naturally, an Engineer Enlisted Reserve Corps. Its formation was largely due to the efforts of the Committee on Engineering Education of the Council of National Defense, composed of Dean F. L. Bishop of the College of Engineering of the University of Pittsburgh, chairman; President Charles S. Howe of Case School of Applied Science; Dean Milo S. Ketchum of the College of Engineering of the University of Colorado, President of the Society for the Promotion of Engineering Education;

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and Dr. Samuel P. Capen, Specialist in Higher Education of the United States Bureau of Education. The order creating the Engineer Enlisted Reserve Corps was issued on December 15, 1917, and the Chief of Engineers allowed the Committee to interpret its provisions to the colleges. By order of the Chief of Engineers, students in chemistry and physics were included in this reserve corps. The main provisions of the order of December 15, 1917, are given here as typical of a students' reserve-corps organization:

REGULATIONS GOVERNING ENLISTMENT BY ENGINEERING STUDENTS IN THE ENGINEER BRANCH OF THE ENLISTED RESERVE CORPS

1. The Selective Service Regulations have recently been modified by inserting the following:

“Under such regulations as the Chief of Engineers may prescribe, a proportion of the students, as named by the school faculty, pursuing an engineering course in one of the approved technical engineering schools listed in the War Department may enlist in the Enlisted Reserve Corps of the Engineer Department and thereafter, upon presentation by the registrant to his local board of a certificate of enlistment, such certificate shall be filed with the Questionnaire and the registrant shall be placed in Class Five on the ground that he is in the military service of the United States.”

2. In accordance with the authority given by this modification of Selective Service Regulations, the following regulations are promulgated governing the enlistment by engineer students in the Engineer Enlisted Reserve Corps.

3. In order to be eligible for enlistment in the Engineer branch of the Enlisted Reserve Corps under the above-quoted amendment to Selective Service Regulations, a candidate must fulfill the following conditions:

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- (a) He must be a citizen of the United States.
- (b) He must be a student in one of the schools, the names of which are borne upon the list of technical schools approved by the Secretary of War for the purpose of carrying out Section 5 of the River and Harbor Act approved February 27, 1911, relating to appointments from civil life to the grade of second lieutenant in the Corps of Engineers.
- (c) He must be regularly enrolled and must be pursuing a course required for the degree of Chemical Engineer, Civil Engineer, Electrical Engineer, Mechanical Engineer, Mining Engineer, or some other equivalent engineering or technical degree.
- (d) He must have made since his entry upon this course at the school, a record of standing which will indicate clearly that he may be regarded fairly as deserving a place among the first third, based primarily on the scholastic records, of the young men who have graduated from that institution during the past ten years.

[Paragraphs 4, 5 and 6, here omitted, describe method of application.]

7. As rapidly as possible after the receipt of the applications in the Office of the Chief of Engineers, they will be carefully examined, and the candidates whose applications are approved will promptly be sent cards of authorization, authorizing them to be enlisted in the Engineer Enlisted Reserve Corps by an officer authorized to make enlistments in the Army, provided, of course, that they pass the necessary physical examination which will be made under the direction of the enlisting officer immediately prior to enlistment.

8. When thus enlisted the student's name will be placed on the "inactive list" of the Engineer Enlisted Reserve Corps, and he will be allowed to remain on this inactive list in order to enable him to complete his course at the institution.

9. Immediately after the completion of this course, or upon his discontinuance of the course for other reasons, the student will be given the option of being called into active service under his enlistment and being assigned to some one

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of the Engineering branches of the Army, or of being immediately discharged and taking his place again among those subject to service under the draft.

W. M. BLACK

Major General, Chief of Engineers.

Approved:

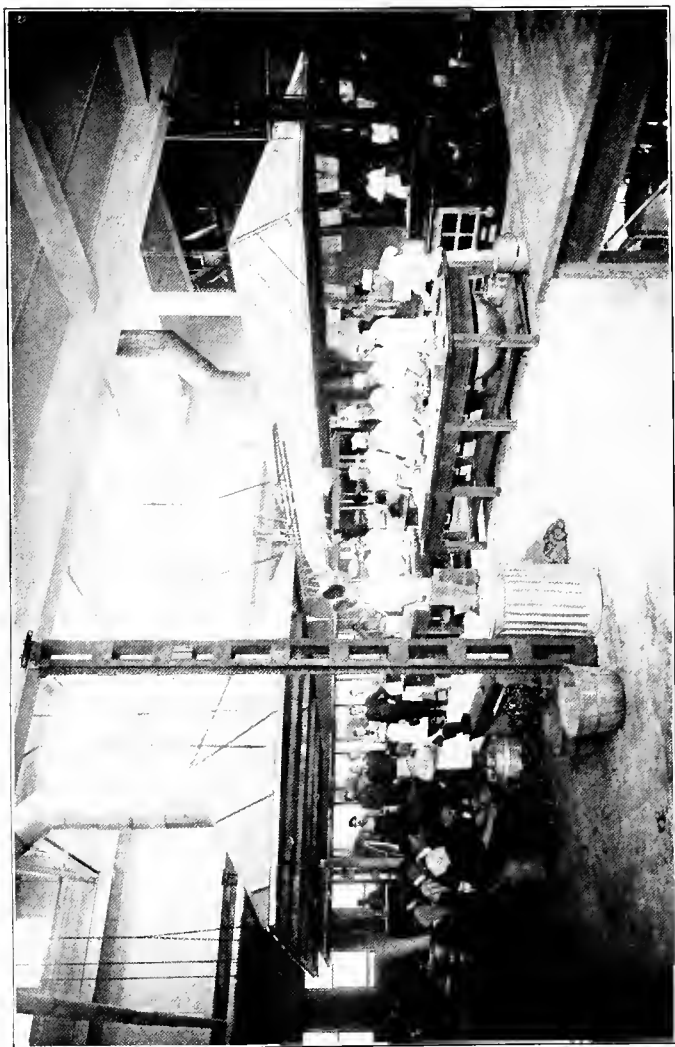
NEWTON D. BAKER

Secretary of War.

Immediately after the order creating the Engineer Enlisted Reserve Corps was issued, there were created (by regulation, not legislation) other enlisted reserves in the Veterinary Corps, the Signal Corps, and the Quartermaster Corps, respectively. To the latter was granted the right to include students of agriculture.

As has already been shown, these uncorrelated attempts to reserve men for training during the war period were later merged into the War Department's general plan for a Students' Army Training Corps. In fact, the suspension of the privilege of voluntary enlistment at the time of the adoption of the new draft age limits in August, 1918, automatically rendered further addition to the enlisted reserve corps impossible. The country had now been fully awakened to the fact that a continued supply of college-trained men was essential for combat with a foe whose technical achievements had played so great a rôle in the warfare of the past four years.

The growing willingness of the Government to recognize the value of college training was, let us hope, due primarily to the excellence of the cause which the colleges represented — to the actual service which they were able to render in the emergency.



UNIVERSITY OF ILLINOIS: KITCHEN CONSTRUCTED AT THE BEAR OF THE ARMOY MESS HALL FOR THE 4,000
MEN OF THE STUDENTS' ARMY TRAINING CORPS

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This granted, there was necessary in addition some means of common understanding between the hitherto widely separated spheres of national administration and academic training. An opportunity for such an understanding was furnished by the need for the enormous expansion in governmental activities created by the war. Whether by accident or design, college men were called from all parts of the country to fill the positions opened by the increase in already existing departments or the creation of new agencies. This unheard-of influx of college graduates and faculty members into Washington during the latter part of 1917 and the year 1918 infused into every department of the Government a willingness at least to consider fairly the possibilities of coöperation with the colleges and universities of the country. President Wilson, himself a former university administrator, showed himself in his appointments entirely free from the century-old prejudice against college presidents and professors as being too impractical for the management of worldly affairs.

A few examples of college faculty members functioning with eminent success in the conduct of national war activities may be mentioned here. Most conspicuous after the President himself is Dean Frederick P. Keppel of Columbia, already mentioned as Third Assistant Secretary of War. In positions of great importance for the war programme stand also such college faculty members as: Colonel John H. Wigmore of the Provost-Marshal-General's Department, in charge of the classification of draft questionnaires, Dean of the Law School of Northwestern University; Professor Charles R. Mann,

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Chairman of the Advisory Board of the War Department's Committee on Education and Special Training, formerly of the physics department of the University of Chicago; Professor Guy Stanton Ford, Director of the Division of Civic and Educational Publications of the Committee on Public Information, Professor of History in the University of Minnesota; Dean Herman Schneider, Chief of the Industrial Service Section of the Bureau of Ordnance, Dean of the College of Engineering of the University of Cincinnati; Professor Walter D. Scott, Chairman of the War Department's Committee on Classification of Personnel in the Army, Professor of Psychology in Northwestern University; President Ray L. Wilbur of Leland Stanford University, United States Food Administration. These are only a few names chosen at random from the strictly non-technical branches of the governmental service. On the technical side it is fairly safe to venture the assertion that practically every scientist of note in the country is to a greater or less degree in the Nation's service, some in civilian capacity and many as members of the military establishment. The effect of this professorial occupation upon the future is well stated by President John H. McCracken of Lafayette College:¹

Washington will never be the same after the war, for one reason, because too many college professors have been living there the last year under all sorts of conditions from the rent free White House to the last care free cot of the com-

¹ Address on "The Bill for a National Department of Education," delivered before the department of higher education of the National Education Association at Mellon Institute, Pittsburgh, July, 1918.

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munal hotel room, and these college professors have not only been watching government at work, they have been thinking about government.

So after the war, if not before, there will be a Department of Education at Washington, with a Secretary who will occupy both a seat in the Cabinet and a library-laboratory-office in the new Humanities Building which a victorious people will build, illogically enough, as a memorial to the truth: a man's life consisteth not in the abundance of the things which he possesseth. As a nation, be it autocracy or be it democracy, thinketh in its heart, so it is.

In these words President McCracken has touched a vital spot in the relations between the Government and the colleges. For a great many years past the educators of the country have urged the establishment of a Federal Department of Education, with a Secretary as a member of the President's Cabinet. The present Bureau of Education has functioned to the best of its ability, but in its subordinate position as a subdivision of the Department of the Interior it has lacked both funds and influence to accomplish all which should be accomplished for education in our great democracy. Lacking a nationally controlled school system, the United States is one of the few great countries to elevate labor, commerce and agriculture to Cabinet positions, while education assumes a secondary place. The war has brought to full view the difficulties attendant upon coördinating the Nation's educational facilities in an emergency and has intensified the effort made to secure the passage by Congress of a bill creating a Federal Department of Education.

Doubtless the strongest argument for such a Department is to be found in the hopeless lack of co-

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ordination between the various educational functions already exercised by the Government. In spite of the existence of a Bureau of Education, nearly every Department has its own educational activities, which, extensive enough in times of peace, have been greatly increased by war. The following lists, furnished by the Bureau of Education, will give some idea of the present diffusion and probable duplication of effort in the Nation's educational activities. It is safe to estimate that the combined expenditures of these uncorrelated agencies must be immense, and it is only reasonable to suppose that proper coördination in a Department of Education would effect a considerable saving of money and increase of efficiency.

EDUCATIONAL AGENCIES OF THE UNITED STATES GOVERNMENT

(Not including military and naval institutions, Smithsonian, Congressional Library, schools of the District of Columbia.)

In Normal Times:

Department of the Interior:

- Bureau of Education (Alaska, General)
- Indian Office (Indian Schools)
- Howard University
- Columbia Institute for the Deaf

War Department:

- Army Post Schools
- Bureau of Insular Affairs (Philippine Islands, Porto Rico)
- Navy Department (Guam, Virgin Islands)

Department of Justice:

- National Training School for Boys

Treasury Department:

- Public Health Service (School Medical Inspection)

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Department of Agriculture:

States Relations Service (Division of Agricultural Education)

Department of Labor:

Bureau of Naturalization (Education for Citizenship)

Bureau of Labor Statistics (Industrial Education)

Children's Bureau (Division of Child Labor)

Employment Service (Boys' Working Reserve)

Pan American Union:

Division of Education

The Panama Canal:

Education in the Canal Zone

Federal Board for Vocational Education

Additional Agencies for War Time:

Committee on Engineering and Education of the Advisory Commission of the Council of National Defense

Shipping Board (Training shipyard workers)

Surgeon-General's Office, War (Reeducation)

Bureau of War Risk Insurance (Reeducation)

Woman's Committee of Council of National Defense

Junior Red Cross

War Department, Committee on Education and Special Training

Food Administration, Collegiate Section

Red Cross (Reeducation)

Commission on Training Camp Activities (Committee on Education)

It is natural that in time of war the schools and colleges should be considered as legitimate fields for various sorts of patriotic propaganda. Hence they (especially the colleges) have been solicited for help by so many governmental and unofficial agencies that the mind of the average school man must necessarily

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whirl with confusion at the number and variety of demands, in themselves perfectly worthy, upon his time and patriotism. Among the departments, administrations and other agencies now seeking to reach the schools, the Bureau of Education lists the following:

- Food Administration
- Fuel Administration
- Junior Red Cross
- Four Minute Men
- War Savings Committee
- Boy's Working Reserve
- Internal Revenue Bureau
- Liberty Loan Publicity Committee
- Council of National Defense
- Woman's Committee
- State Councils
- Federal Board for Vocational Education
- Department of Agriculture
- National Security League
- National Committee of Patriotic Societies

Dr. H. H. Wheaton, late of the Bureau of Education, writing on this subject, says:²

The distribution of war publications and the carrying on of war propaganda and movements alone is taxing school systems to the utmost. The National Education Association press service issued a news release some time ago under the title "Thru the Schools in War Time," in which appeared the significant statement that "The agencies here listed are *but a few of the more important ones whose activities touch the schools, colleges and universities and affect vitally student life in war time.*" With the exception of an introductory paragraph of fifteen lines, the entire "release" is devoted to a list of official and unofficial

² "Wanted: a War Council on Education."

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agencies making demands upon or using the schools for war purposes. That list is three feet and a half in length, and yet "none of the sectional or purely local organizations are given."

According to this authority the schools are used for war purposes by nine Departments of the Government, comprising 46 bureaus and divisions; by 15 Federal boards, commissioners and committees, comprising 33 bureaus, divisions, and sub-committees, and 48 State councils of defense; by 70 national organizations, one of which represents 16 and another 41 national associations; by 10 international associations, and by 64 relief funds. . . . For no arm of the government is acting as a clearing-house for these hundreds of agencies; no official is vested with the requisite authority or equipped to correlate and coördinate war activities in education at a time, the most important in the history of our educational system. School authorities everywhere complain of this condition and also of the decentralized activities at Washington.

The solution for all these difficulties is believed by school men to consist in the creation of a Department of Education under the leadership of a single man who should sit in the President's Cabinet. Both the National Education Association and the American Council on Education, representing the colleges and professional schools, have been active during the summer of 1918 in preparing for Congress a bill embodying provisions of this nature. The plan as discussed contemplates: the appointment of a Secretary of Education and three Assistant Secretaries; the transference to the new Department of most of the scattered educational agencies of the National Government; the coöperation of the National Department of Education with the educational system of the various states; the encouragement of all types of

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research; special attention to americanization and the training of illiterates; the appropriation of more than \$100,000,000.

Without doubt the creation of some kind of a national, official organization of education is the greatest problem which the war has brought home to the school men of the country. At present the War Department's Committee on Education and Special Training, on account of the exigencies of the war situation, has come nearer to organizing a unified policy for the colleges than has ever been done before. After the peace, however, the situation will require some less specialized authority and exercise of effort than can be expected from the War Department. Should another great war ever come, the colleges will be fortunate indeed if they can have an official spokesman of high rank in the Nation's councils.

An especial weakness of our lack of educational organization on a national basis is to be found in the fact that we have few facilities for strengthening international relations educationally. With no funds available for the support of educational attachés abroad, nor even for the proper study of foreign educational systems and opportunities, we are in danger of a narrowness from which, so far, only private initiative has saved us. We have no Federal educational officer of rank sufficient to permit a direct approach to a foreign Minister of Education, nor have we any official educational organization powerful enough to initiate a policy of coöperation in the smallest details with other nations, except through the devious channels of the Departments of the Interior and of State. As a matter of fact, the whole

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field of foreign relations in education has been of necessity practically untouched except through unofficial channels. To the best of its ability the Bureau of Education has worked to promote the cause of the American college in South America, but funds have been lacking to follow up bulletins and publications with personal work either here or abroad. It is a stinging rebuke for our lack of a national feeling of responsibility for education that the schooling of our soldiers here and in Europe has had to be entrusted to the Young Men's Christian Association, a private organization that, however splendidly patriotic in its own field of endeavor, is not primarily an educational agency. The universities of other countries, before the war, were obliged to depend upon a private Foundation and upon an entirely unofficial academic association for a list of colleges whose degrees they might properly recognize for admission. Indeed, the only effort ever made by an official agency to standardize higher educational institutions was discontinued by request of higher authority, because the Government had no agency powerful enough to overcome the objections of private institutions to being classified at all. Since the Nation must largely be judged and must stand or fall on the ability of its educated men, some sort of governmental control, or at least organization, of education is necessary and is fully justified. Possibly the conception of largely increased Government power and responsibility which the war has brought with it will in time extend to the conduct of schools and colleges as well.

Even without any official interrelation, the colleges of the United States have been drawn closer to the

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universities of our Allies by the war. It is inevitable that France will claim many graduate students from America, and it is significant that English universities have opened the opportunity for the winning of the doctorate of philosophy. The war prestige of the United States will serve to draw students from all lands to our own colleges and universities after the peace. Already women have begun to come to America from France for collegiate study under a semi-official plan. Recently the American Council on Education, probably now the most representative academic body in the country, passed the following resolution:

Be it resolved: That the American Council on Education, representing the universities and colleges of the United States of America, transmit to the faculties of the universities of Russia the following letter:

“With grave concern we have heard the reports of the dangers and difficulties which have beset the universities of Russia. Unprecedented events have worked to disorganize the educational system built up with years of arduous endeavor in your land. As representatives of sister institutions in a country whose whole heart sympathizes with Russia in her danger, we offer to you our sincerest wishes for the continuance of education in your nation, and the assurance of our unanimous desire to render all the help in our power. Threatened today by a relentless and materialistic military power, the world must unite to keep burning the pure flame of a learning which seeks the salvation of mankind. The ancient friendship of Russia and the United States of America renews itself today in the bond which education for a common end has forged between the universities of your land and ours.”

All of these things are significant of a new internationalism which is affecting education as well as



UNIVERSITY OF ILLINOIS ARMORY CONVERTED INTO S. A. T. C. BARRACKS. THE SLEEPING QUARTERS WERE ON AN UPPER FLOOR TEMPORARILY BUILT OF WOOD; THE MESS HALL WAS ON THE MAIN FLOOR BELOW

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government. America must strive for a strong internal organization, so that she may be the more ready to extend the hand of fellowship to the schools and colleges of foreign countries, to learn by their experience, and to share with them the results of her own prosperity and success.

CHAPTER XI

COLLEGE WOMEN AND THE WAR

Essential nature of women's war service — Leadership assumed by college women — Demands of the Government for trained women — College war courses for women — Patriotic spirit and activities of women students — Committee on War Service Training for Women College Students — College women in Red Cross work — Training of nurses — Training Camp for Nurses at Vassar College — Training for civilian relief or home service — Training of reconstruction aides — American women's college units in foreign service — Red Cross work in the colleges — Courses on food conservation and production — The opportunity of the schools of home economics — Three great fields of women's war service.

It would be superfluous to pay tribute here to the patriotism of American women. The coöperation of women in war is as vital a factor as food, ships, men or ammunition; without their help no war could be successfully carried on. It is a mistake to underestimate the value of women's war work because the various activities included therein are rarely ever of a strictly military nature. No one, for example, doubts the essential nature of Red Cross work — peculiarly a field for the endeavor of women. No one, nowadays, estimates lightly the results of our national efforts toward food conservation, a movement the whole success of which has rested with the women of America. War is so intricate a structure, built up as it is with the materials of science, wealth and labor as well as human courage in the field, that women's work may occasionally be undervalued as

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a component part of the whole. Nevertheless it is an absolute essential.

It was perhaps to be expected that college women should take leadership in women's war activities as college men had done in theirs. There was, of course, not always the same opportunity for direct leadership of others as in the case of men; no officers' training camps or any feminine equivalent furnished the machinery for mobilization on a national scale. With the eyes of all people turned toward the more picturesque aspects of war, woman began her duties somewhat humbly and unnoticed. The expansion of the Red Cross organization in America, however, soon began to call for women of ability in every community to organize the local forces. It is not an exaggeration to say that college-trained women came to the front in this emergency in much the same way as did their husbands, sons and brothers in the military crisis.

The demand for trained women grew enormously as the war went on. It is significant of the value of training that many national agencies were oversupplied with untrained women applicants and quite at a loss to know where to turn for trained women, so great did the demand become within a short period. Women were sought by the Government as accountants, civilian relief workers, dietitians, draftsmen, employment managers, industrial workers, nurses, physicists, psychologists, public speakers, reconstruction aides, secretaries, social-welfare workers, statisticians, teachers, translators, and so on. Many of these women could be provided only by the colleges. The opportunities for higher education in this field were scarcely second to those offered in the

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training of men. On May 1, 1918, the Information Division of the Women's Committee of the Council of National Defense compiled a list of occupations then open to women.¹ It includes 55 different titles, but what is especially noteworthy is the fact that well over half of the occupations listed require collegiate training. Significant too is the evident value of technical training for women as well as men in time of war. Something more than a general college education is often required. Hence many college graduates have returned for work in special subjects. Miss Julia Newton Brooks, in charge of the Women's Collegiate Section, United States Employment Service, Department of Labor, says, in the article already quoted:

For the average college women, nevertheless, who have had little further technical experience, the plea is that as the men of the country have for months been in training camps ready to fight the Hun, so they, too, should go into training in order that as specialists in their lines they may be prepared to carry on the battle "over there."

The war had been in progress only a few months when the importance of women's war work began to receive national and official attention. Early in 1918 the Committee on Public Information, through its Division on Woman's War Work, compiled an interesting pamphlet on "War Work of Women in Colleges" from the answers received to 150 questionnaires sent out to the colleges of the country. Some of the more striking facts thus gathered are herewith summarized. War courses were adopted every-

¹ *Bulletin of the Association of American Colleges*, iv, No. 4, p. 11.

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where, in, for example, agriculture, nutrition and food values, clinical work, wireless telegraphy, automobile mechanism, bookkeeping, typewriting, foreign languages (with attention to military and business terms), social service in war time, industrial chemistry, bacteriology, etc. As regards college credit, the practices varied. We are told:

The usual policy seems to be to give credit only to those courses that can be taught by a regular department of the college, and which are connected definitely with the regular work of that department, or those which are already in the curriculum and are changed to meet the emergency. For instance at Wellesley, the various war courses such as home nursing and stenography are outside the curriculum, and receive no credit, while wireless telegraphy and map making, given under the physics and geological departments, are rated as regular subjects.

An interesting tendency is illustrated in the substitution of women in schools and subjects commonly associated with men alone. Thus, the Harvard Dental School offers a training course for women dental hygienists, and a number of engineering schools enroll women in more than the usual number.

As is natural, the necessity for saving has impressed itself deeply upon college women. Many sororities and women's organizations have devoted funds usually employed for other purposes to war work; dances and parties are reduced to a minimum; college publications are simplified or discontinued; food conservation is diligently practiced and war gardens cultivated. In fact, the sense of duty of the average college woman has proved itself extremely keen. College women have resorted to many methods for

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the raising of money for various patriotic purposes. The following quotation presents an interesting picture of patriotism:

The raising of relief funds and subscriptions to the liberty loan has met a really tremendous response from college women. Shoe shining, hairdressing, making beds, every sort of work, has its cash equivalent to enable the girls to meet their quota of the funds. In one of the halls at Wellesley there are signs on every door, giving lists of the work which the occupants can do, with prices attached. Many of the deans speak of the way in which students are economizing this year and diverting the money spent on luxuries to the student friendship fund, Red Cross membership, etc. Salem College has a unique method of raising funds. The student body has not incurred the expense of printing the college paper, *The Ivy*, this year. Instead, the editor reads the articles received for the usual departments of the magazine to the students. The advertisers have patriotically agreed to pay for the usual amount of space, and the advertisements are read also. The complete file of the magazine thus prepared will be presented to the college at the end of the year.

As is natural, there was, and still is, a constant flood of applications from college women who desire to go to France. Most of these have to be refused because the applicants are not trained in any of the kinds of work needed in that war-ridden land, and every unoccupied person, however well intentioned, is merely an additional burden. Possibly the best opportunity for war service by women lay in the province controlled by the Civil Service Commission. While it was not particularly spectacular to perform clerical or even technical work on this side of the water, such help was one of the most needed factors in winning the war.

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A new factor in the preparation of college women for war service entered the field in the creation by the American Council on Education of a Committee on War Service Training for Women College Students. Regarding this activity the Council issued the following announcement:

We are pleased to announce that the American Council on Education has created its eighth general Committee—The Committee on War Service Training for Women College Students. The Chairman of this Committee is Dr. Elizabeth Kemper Adams, of the Professional Section of the U. S. Employment Service, Department of Labor. This Committee is working in close touch with the Committee on Education and Special Training of the War Department. The other members of the Committee are:

Dr. Samuel P. Capen, U. S. Bureau of Education.
Member Educational Advisory Board, War Department Committee on Education and Special Training for the Students' Army Training Corps.

Dr. Guy Stanton Ford, University of Minnesota. Committee on Public Information, History and Government.

Dean Virginia C. Gildersleeve, Barnard College, Columbia University.

Dr. Vernon Kellogg, Leland Stanford Junior University, U. S. Food Administration. National Research Council. Biology.

Mrs. Gertrude S. Martin, Executive Secretary of the Association of College Alumnae.

Dr. Herbert R. Moody, College of the City of New York, War Industries Board, Chemical Division. Chemistry.

The creation of such a committee is of especial interest since it represents what is apparently the first

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nationally organized effort to utilize and train college women for war purposes.

It is, of course, the field of Red Cross work which is today occupying the attention of most American women. Nearly every community now has its Red Cross center where the various familiar types of activity are carried on. The great bulk of this work requires but little training on the part of the worker, and it is in most cases quite immaterial whether this worker is, or is not, a college graduate. Hence it may seem at first glance that the colleges are not in position to render here any specific service of especial merit. There are, however, a large variety of activities that require college training and that are associated with the work of the Red Cross, the Surgeon-General and similar military agencies. Among the most important is nursing. While it is true that more nurses are trained in special hospital schools than in colleges, yet the higher academic institutions, particularly those in large cities, have begun to see a real war service in the training of nurses, and numerous arrangements have been made with hospitals and medical colleges for this purpose. The simplest form is a course in first aid, and it is perhaps not too foreign to the war emergency to mention here also the courses in home nursing which numerous colleges are offering in order to prepare their women to take the places of more highly trained nurses called abroad. The surgical-dressings course is also common, and dietetics is offered frequently by departments of home economics.

An example of unusually high development in this branch of work is to be found in the Training Camp

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for Nurses at Vassar College, announcement of which was made early in 1918. The plan was carried out under the auspices of the National Council of Defense and the American Red Cross, as the direct result of a movement initiated during 1917 by the Provisional Alumnae Council of Vassar College to use the college buildings and equipment as a training school for young women for patriotic service. The relation of the Red Cross is made plain by the following resolution, passed by the Red Cross War Council on January 9, 1918:

That from the Red Cross War Fund the sum of Seventy-five Thousand Dollars (\$75,000) be, and it is hereby appropriated, of which so much as may be necessary shall be expended for the establishment and maintenance of a School of Science Applied to Trained Nursing at Vassar College, during the summer of 1918, under the auspices of the American Red Cross, as specified in a letter from President H. N. McCracken of Vassar College to the Vice-Chairman of the Red Cross, dated January 3, 1918.

Thus, before the Government had worked out any general plan for using the colleges of the land as a training place for men, the Red Cross had already seen the opportunity and grasped it in at least one instance. By receiving only college graduates and by intensive work, Vassar saw the opportunity to shorten somewhat the period usually required for training nurses. As immediate results of such a course there stood out the lightening of the teaching burden carried by hospitals, the training of war workers, and the preparation of a considerable number of educated women "for the important leading positions in nursing in its social aspects, [to be]

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ready after the war to take part in important reconstruction work." The required subjects embraced anatomy and physiology, bacteriology, chemistry, hygiene and sanitation, elementary materia medica, nutrition and cookery, elementary nursing and hospital economy, historical and social aspects of nursing, etc. This training was supplemented by work in selected hospitals.

The needs of soldiers' families constitute as true a war emergency as do the needs of the soldiers themselves in the field. This was recognized at once by the Red Cross, and the situation was met by the activities of the Civilian Relief Department or Home Service Section as a distinct branch of Red Cross work. By a decentralized plan of organization local committees were soon formed in every community to undertake the work of home service. Naturally this called immediately for thousands of trained social workers, most of whom were necessarily women, and an immense additional burden was put upon the various social and charity organizations throughout the land, since the wise plan had been adopted of linking up the relief work for soldiers' dependents with the relief organizations already established for general community needs. As a result the Red Cross realized the necessity of training its own workers as soon as possible, not only to increase the amount of human material available, but also because the new work demanded an entirely new social technique that could be acquired only by special education. Accordingly the colleges were called upon to coöperate in furnishing teachers and equipment for various sorts of home-service courses. In most cases the local relief

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organizations furnished opportunities for supervised field work and contributed also to the Red Cross teaching staff.

At the end of a year and a half of participation in the war it is interesting to note the extent to which the colleges have been able to serve in preparing women for this important branch of the National service. The following statements have been prepared by Dr. Thomas J. Riley, formerly Director of the St. Louis School of Social Economy and now National Director of Home Service Institutes, Department of Civilian Relief, American Red Cross :

Home Service Institutes.—An institute is a six weeks' intensive training course, consisting of twenty-four hours of class work, and one hundred and fifty hours of field work, with the fundamental idea of preparing the students to take charge of Home Service Sections as Executive Secretaries. This work is entirely for the Red Cross work with the families of the men in service, giving in an intelligent, tactful and broad humanitarian spirit such advice and help as may be essential to uphold the morale and standards of the families at home. There is a Director of the Institute, and a Supervisor of the field work, both appointed by the Director-General of Civilian Relief at Washington, upon recommendation by the National Director of Home Service Institutes. In the case of the Director, it is usually the case (although not always so) that he is directly affiliated with the university or college in the city where the Institute is held—generally being the Professor of Sociology. To date, September 13th, there have been sixty-six sessions held, thirty-seven of which have been in affiliation with universities or colleges.

Home Service College Courses.—This is a course identical with an Institute, but held in the universities and colleges

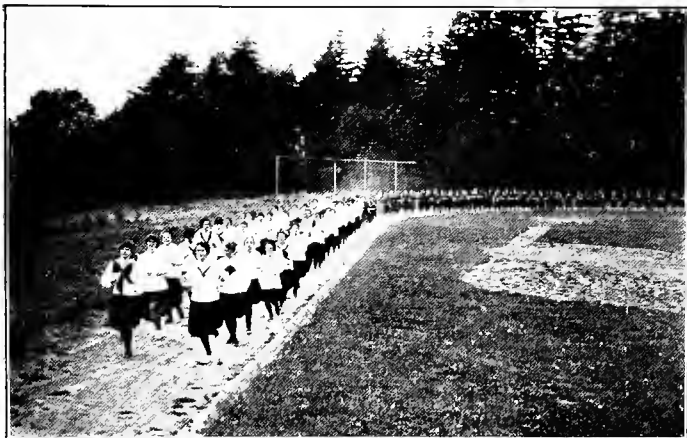
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for the seniors and graduate students; the only modification being that the field work is done immediately following the last semester, in order not to burden the students with the field work in justice to their other college courses. This field work is usually done if possible in the students' home town, under the care of an accredited agency which has indicated its willingness to assume the training of these college course students. Nine colleges have given this training.

Information Courses in Home Service.—The Red Cross Information Courses in Home Service were given during the summer sessions of the universities, colleges and normal schools throughout the country, in order to reach more particularly the teachers, and those who, returning to their home communities, would carry the Home Service message to their people, and be able to act in an intelligent manner on committees and in an advisory capacity. This course might consist of anywhere from three to thirty lectures, and be given by one or more lecturers, as the individual educational institution might decide; or it might consist of one or two lectures given to the entire student body on the subject of Home Service. Of such lecture courses there were about one hundred and thirty-seven given in various parts of the country.

About twelve hundred students have taken the Institute or College course, of which nearly a thousand have been graduated. No adequate statistics have been received regarding the Information Courses, but a rough estimate of returns from twenty-four institutions, gives 22,020 in the summer audiences.

Closely allied in nature to the work of the Red Cross nurse is that of the reconstruction aide. Women for this branch are trained under the direction of the Surgeon-General at various colleges and schools throughout the country and are employed to give remedial exercises and massage to wounded soldiers in military hospitals. This work forms a vital part



REED COLLEGE UNIT OF TWO HUNDRED WOMEN IN TRAINING FOR
RECONSTRUCTION AIDES IN MILITARY HOSPITALS



REED COLLEGE: CLASS OF RECONSTRUCTION AIDES IN THE ANATOMICAL
LABORATORY

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of the extensive rehabilitation plan laid out by the Surgeon-General and the Federal Board for Vocational Education.² The training includes (at Reed College) instruction in anatomy, physiology, personal hygiene, psychological aspects of recovery, posture, theory of bandaging, military-hospital management, massage, corrective gymnastics and other remedial exercises, practice in massage, and clinics in orthopaedic surgery. Reconstruction aides are civilian employees of the Medical Corps of the Army and promotion is based on merit.

Especial mention must be made of various units of women sent abroad for war work by some of the leading women's colleges. The first of these seems to have been the Smith College Reconstruction Unit, whose splendid work in the face of the German advance of 1918 has been widely published. A second group was sent by Wellesley in May, 1918, composed of two graduate nurses, two experienced social workers, a dietitian and a doctor working in conjunction with the Red Cross. From unofficial reports it seems that these examples were to have been imitated by numerous other institutions, had not the armistice intervened to suspend hostilities.

A comprehensive idea of women's war work of the various types above described may best be gained from the following tabular presentation of Red Cross work in the higher educational institutions of the United States, prepared in the Bureau of Translation and Research of the American Red Cross in July, 1918:

² For a complete description of this plan see, in this series, Garrard Harris, *The Redemption of the Disabled*.

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RED CROSS WORK IN AMERICAN COLLEGES

STATE	SCHOOL	WORK PURSUED
<i>Alabama</i>	ALABAMA GIRLS' HOME TECHNICAL INSTITUTE, Montevallo:	economics — Red Cross unit, 1917-1918.
<i>Arizona</i>	No report.	
<i>Arkansas</i>	"	
<i>California</i>	"	
<i>Colorado</i>	STATE NORMAL, Gunnison:	Twelve sections organized for various sections of Red Cross work; home economics — dietetics; first aid.
	STATE TEACHERS' COLLEGE, Greeley:	First aid.
	UNIVERSITY OF DENVER, Denver:	Regular Red Cross courses — enrollment of 400 students.
	UNIVERSITY OF COLORADO, Boulder:	Red Cross auxiliary chapter in university; all work under expert instruction and direction; Red Cross lectures under Dr. Axson in the summer school.
	COLORADO WOMAN'S COLLEGE, Denver:	Surgical dressings under Red Cross instructors; first-aid work to be given in the summer school.
<i>Connecticut</i>	No report.	
<i>Delaware</i>	"	
<i>Florida</i>	"	
<i>Georgia</i>	UNIVERSITY OF GEORGIA, Athens:	No organized Red Cross course.
<i>Idaho</i>	No report.	
<i>Illinois</i>	UNIVERSITY OF ILLINOIS, Urbana:	First-aid work, granting Red Cross certificate; home nursing and surgical dressings.

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RED CROSS WORK IN AMERICAN COLLEGES — *Continued*

<i>Indiana</i>	INDIANA UNIVERSITY, Bloomington:	Elementary hygiene and home care of the sick; first aid; surgical dressings; hospital garments; civilian relief; social service — all granting certificates, under Red Cross instructors.
	ST. MARY'S OF THE WOODS COLLEGE AND ACADEMY, St. Mary's of the Woods:	Nurses' aides, under trained and authorized Red Cross instructors; first aid; dietetics; home nursing; hygiene; surgical dressings; knitting.
	PURDUE UNIVERSITY, Lafayette:	Auxiliary work, i. e., providing facilities for first-aid classes, furnishing work rooms, storage and packing rooms for surgical dressings; rooms for instruction in surgical dressings, etc.
<i>Iowa</i>	No report.	
<i>Kansas</i>	"	
<i>Kentucky</i>	UNIVERSITY OF KENTUCKY, Lexington:	General Red Cross course.
<i>Louisiana</i>	No report.	
<i>Maine</i>	UNIVERSITY OF MAINE, Orono:	Red Cross sewing; home nursing; dietetics; sanitation.
<i>Maryland</i>	No report.	
<i>Massachusetts</i> . .	SMITH COLLEGE, Northampton:	Smith branch of Hampshire County Chapter, American Red Cross; surgical dressings unit; home service; <i>relief unit in France</i> ; summer course in psychiatrics.

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RED CROSS WORK IN AMERICAN COLLEGES — *Continued*

<i>Michigan</i>	UNIVERSITY OF MICHIGAN, Ann Arbor:	Surgical dressings; home service.
<i>Minnesota</i>	No report.	
<i>Mississippi</i>	UNIVERSITY OF MISSISSIPPI, University:	Established Red Cross course.
<i>Missouri</i>	UNIVERSITY OF MISSOURI, Columbia:	Established Red Cross course.
	STATE NORMAL, Kirksville:	Sewing; home nursing.
	STATE NORMAL, Springfield:	Sewing; surgical dressings.
	WASHINGTON UNIVERSITY, St. Louis:	Hospital Unit No. 21, now in France; hospital unit in medical school (Barnes Hospital); surgical dressings; nurses' aides; laboratory work in Barnes Hospital clinic.
<i>Montana</i>	No report.	
<i>Nebraska</i>	"	
<i>Nevada</i>	UNIVERSITY OF NEVADA, Reno:	First aid course in teachers' summer session; dietetics; home economics; co-operation with local Red Cross chapter; sewing; knitting; one period, laboratory work.
<i>New Hampshire</i>	NEW HAMPSHIRE COLLEGE, Durham:	First aid; dietetics; home economics; no regular Red Cross course.
	DARTMOUTH COLLEGE, Hanover:	No regular Red Cross course.
<i>New Jersey</i>	STATE NORMAL, Montclair:	Surgical dressings; sewing.
	STATE NORMAL, Newark:	First aid; hygiene; sewing.
	STEVENS INSTITUTE OF TECHNOLOGY, Hoboken:	No established Red Cross course.
	STATE NORMAL, Trenton:	Red Cross dietetics (31 certified graduates).

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RED CROSS WORK IN AMERICAN COLLEGES — *Continued*

<i>New Mexico</i> ...	No report.	
<i>New York</i>	VASSAR COLLEGE, Poughkeepsie:	Training course for nurses.
	COLUMBIA UNIVERSITY, New York:	Complete National Service course: home service under the Red Cross; home health volunteers; nursing; Red Cross accounting.
<i>North Carolina</i> ..	MEREDITH COLLEGE, Raleigh:	No established Red Cross course.
	NORMAL AND COLLEGIATE INSTITUTE, Asheville:	First aid; Red Cross sewing.
	STATE NORMAL, Greensboro:	Red Cross course in department of food and nutrition, covering six hours per week.
<i>North Dakota</i> ..	No report.	
<i>Ohio</i>	"	
<i>Oklahoma</i>	UNIVERSITY OF OKLAHOMA, Norman:	Nursing; first aid; home nursing; dietetics; surgical dressings; home service.
<i>Oregon</i>	REED COLLEGE, Portland:	Two Red Cross Institutes; first aid; reconstruction aides; complete war course.
<i>Pennsylvania</i> ..	BRYN MAWR COLLEGE, Bryn Mawr:	No established Red Cross course.
	UNIVERSITY OF PITTSBURGH, Pittsburgh:	Home service.
	LEHIGH UNIVERSITY, South Bethlehem:	No established Red Cross course.
<i>Rhode Island</i> ..	No report.	
<i>South Carolina</i> ..	UNIVERSITY OF SOUTH CAROLINA, Columbia:	Red Cross course in civilian relief.
<i>South Dakota</i> ..	STATE NORMAL, Madison:	Instruction in surgical dressings; knitting, etc.
	UNIVERSITY OF SOUTH DAKOTA, Vermilion:	Civilian relief work; first aid surgical dressings.

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RED CROSS WORK IN AMERICAN COLLEGES — *Continued*

<i>Tennessee</i>	No report.	
<i>Texas</i>	COLLEGE OF INDUS- TRIAL ARTS, Denton:	First aid; home nursing; surgical dressings; sewing.
	UNIVERSITY OF TEXAS, Austin:	Principles of hygiene; sanitation and nursing.
	NORMAL COLLEGE, Canyon:	Surgical dressings; first aid.
	SAM HOUSTON NORMAL INSTITUTE, Huntsville:	Sewing; surgical dressings.
<i>Utah</i>	No report.	
<i>Vermont</i>	"	
<i>Virginia</i>	SWEET BRIAR COL- LEGE, Sweet Briar:	Red Cross branch; surgical dressings; sewing; knitting.
	WASHINGTON AND LEE UNIVERSITY, Lex- ington:	No established Red Cross course.
<i>Washington</i> . . .	STATE NORMAL, Bell- ingham:	Home service; Red Cross lecture course.
	UNIVERSITY OF WASH- INGTON, Seattle:	Nurses' aides; civilian relief; surgical dressings in sphagnum moss—two hours each week.
	STATE COLLEGE, Pull- man:	First aid; two-year course in pre-nursing; lectures in home service.
<i>West Virginia</i> . .	STATE NORMAL, Atheus:	First-aid course.
	MONT DE CHANTEL ACADEMY, Wheel- ing:	Red Cross sewing.
<i>Wisconsin</i>	UNIVERSITY OF WIS- CONSIN, Madison:	Red Cross lecture course.
	PLATTSVILLE NORMAL SCHOOL, Plattsville:	Home service.
<i>Wyoming</i>	No report.	
<i>District of Co- lumbia</i>	No report.	

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Of a different nature from the Red Cross and allied activities have been the types of work carried on by colleges under the direction of the United States Food Administration. During the summer of 1917 the Food Administration asked the late President Charles R. Van Hise of the University of Wisconsin to organize the educational work in the higher institutions of learning. President Van Hise addressed to the colleges a letter asking them to carry during the first semester of the coming college year a set of lectures on the food situation for which outlines were furnished by the Food Administration. Regarding the nature of the work, the following is quoted from President Van Hise's letter:

It is desired that the general lectures herewith may be supplemented by special courses. A course of ten lectures under the title "Ten Lessons upon Food Conservation" has already been prepared and printed by the Food Administration. Copies of these lessons will be sent you from Washington.

It is proposed to have prepared other special courses, one upon food production, another upon fuel conservation, and possibly an additional one upon mineral conservation. It is expected that these courses will be available the second semester of the year.

During the course of the year a complete outline of lectures on food conservation and (with the co-operation of the Department of Agriculture) on food production was sent to the colleges of the country. The courses in food conservation were given very generally by the colleges, particularly by those with departments of home economics. As a result an army of Volunteer College Students was organized from among the college women who had taken this

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course, and considerable work was done throughout the various states in public speaking, canning demonstrations, etc. The course in food conservation treated such important subjects as: the world's food supply; food and the war; the wheat situation; flour and bread; the sugar situation; fats and oils; the meat situation; milk; vegetables and fruits; an adequate diet; food and the community. As a result the schools of home economics have, so to say, come into their own. To them has been given the opportunity to perform a definite piece of war service the value of which may be counted with that of the older type of professional schools, as, for example, medical and engineering institutions. The food conservation and production work has also opened to college women an avenue for war work in which their training offers an opportunity for service beyond that granted to everyone. The necessary materials are easily gathered, and, although the Red Cross worker often must seek her duty far afield, every community spells opportunity to the student of home economics. It is a significant fact that the national food conservation movement has been almost entirely under the direction of college-trained men and women.

What has been said in this chapter regarding college women applies in some measure to patriotic and intelligent American women of every class and degree of education. Professor C. C. Arbuthnot of Western Reserve University has summed up splendidly³ the three great duties which we must perform

³ "Woman's Economic Service in Time of War," an address given at the College for Women, Western Reserve University, April 14, 1917.

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in order to win the war and pass through the reconstruction period:

(1) Our soldiers and sailors must go forth armed, clothed and fed in the best possible manner. No unnecessary hardships should be put upon them. The scandals of the earlier wars such as "embalmed beef" must not be repeated. These men should have the most suitable material equipment and the best food that money will buy, cost what it may. Their life will be hard enough at best. Every exertion that the Nation can make should be put forth to set a high standard of comfort for the troops so far as it can be done by economic means.

(2) This country, in the forthcoming year, has a tremendous responsibility in the matter of providing food for her allies as well as for the people within our own borders. Our agricultural resources must be pushed to the limit. And to this must be added more munitions. If this country extends the proposed loan to France, it will not be taken in money, but in goods.

(3) The day of peace will eventually come and the United States will have a duty in helping to rehabilitate stricken Europe. If the wearing-out process continues long at the present rate, it will be hard to distinguish between victor and vanquished in the period when the tasks of rebuilding wrecked communities will be the world's problem. For that hoped-for time this country should accumulate a surplus of economic strength. Constructive sympathy will require material resources for its expression. Heart and hand will need to go together and now is the time to fill the hand with the means of mercy.

In all of these vital activities women have their share through the Red Cross, the United States Food Administration and the various reconstructive and social agencies. The college woman, favored as she is by education and training, has a greater responsibility and an opportunity for greater achievement.

CHAPTER XII

COLLEGE FINANCES DURING THE WAR

The college system dependent upon private benefactions — The immediate pre-war period one of expansion — Hasty readjustment to the war crisis — Critical financial conditions after a year of war — Reasons for deficits — Decrease in tuition fees — Loss of income from dormitories — Increased operating expenses and salaries — Reductions in budgets imperative — Possible solutions suggested by college administrators — National aid in the emergency proposed — A crisis averted by the creation of the Students' Army Training Corps.

No country in the world has given so liberally in private support of education as has the United States. Our whole college and university system was built up originally on the basis of private support, and today even tax-supported institutions are in many cases the recipients of considerable gifts from private individuals. In the case of these public universities the gifts have largely represented opportunities for the refinement of work and the extension of facilities of the not strictly essential type. For the private institutions, however, such gifts have been an absolute prerequisite of continued activity, since no standard college can be supported today entirely from its tuition income. On the other hand, but few institutions are so richly endowed as to enable them to exist without the revenue accruing from fees. Thus we find the support of most American private colleges and universities derived from two sources, endowment income and fees, in ratios which doubtless vary considerably in different cases.

COLLEGE FINANCES DURING THE WAR

In view of the fact that most colleges, regardless of size of income, are impecunious when outlay is compared with receipts, one needs no unusually vivid imagination to picture the financial clouds which rose upon the academic horizon at the outbreak of war. For more than two years America had profited by the conflict in Europe, and the resulting period of inflation had not only brought liberal gifts to the colleges, but had in some cases involved them in pretentious programmes of building and extension which our entry into the war brought to a sudden stop. Everywhere campaigns for funds, planned or under way, were modified, given up, or brought to a hasty conclusion. Instead, the efforts of many colleges were turned toward campaigns for new students to take the places of those leaving for war or toward the consideration of plans for retrenchment in the annual budget. At first, as has been shown in preceding chapters, there was but little disposition on the part of those in high places to consider the colleges worth saving as a war necessity. The summer of 1918 found higher educational institutions, after a year of reduced incomes and attendance, in a state of grave apprehension for the financial future. With no end of the war in sight, with constant recruiting campaigns taking steady toll of students, and with the prospect of a lowered draft age imminent, there seemed little prospect of continuing work without seriously mortgaging the future. In one case at least, that of Olivet College, the trustees voted to close the institution during the war, whereupon six of the professors secured permission to conduct the institution on a war-time basis. Throughout the

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country, however, there was a feeling that higher education had as yet suffered but few irreparable losses. The *American College Bulletin*,¹ which may be regarded as the representative organ of the privately supported colleges, in its issue for July 27, 1918, voiced this sentiment in the following words:

Reports that have just come in indicate that, while the pressure has been very great, necessitating extraordinary efforts in framing and raising war budgets, financially the colleges have won through the first year of the war in a remarkable way. Scarcely any institutions of standard college rank have been forced to close their doors although some ten or twelve schools of lower grade have suspended for reasons more or less connected with the war. In a number of instances colleges for the first time are enjoying an increase in their income as a result of endowment campaigns previously completed. While it has been necessary to effect economies where possible and to solicit additional gifts in order to offset losses in tuition and increased costs, the average net deficit has not been large. The college plants are intact (during the Civil War a number of colleges were partly destroyed) and there is every reason to believe that the permanent elements in college life will survive at least two years of war without loss in efficiency.

Such a view was perhaps unduly optimistic in view of the actual occurrences of the past year and the uncertainty (at that time) of the future. The accompanying tabulation² of conditions in 16 representative privately supported institutions of widely varying types showed that at least 11 of the total number were facing deficits of considerable size due to the influence of the war.

¹ Published by the Council of Church Boards of Education.

² U. S. Bureau of Education, Higher Education Circular No. 10, April, 1918.

COLLEGE FINANCES DURING THE WAR

EFFECT OF THE WAR ON CERTAIN INSTITUTIONS

Institutions	Students (1916)			Income (1916)	Reduction of Income in 1917-18	Probable War Deficit	Loss in Students in 1917-18	Reasons for Deficit	Means Taken to Avoid Deficit	Remarks
	Men	Women	Total							
University in the East.	3,059	208	3,267	\$1,872,108	\$300,000	Under \$225,000	40 per cent.	Loss of tuition; 1/4 dormitory rents	Faculty gone into service. Alumni gifts.	Not so much difficulty anticipated in future by reason: 1. Faculty readjustments. 2. Large freshman class expected to take special military courses.
.....do.....	5,039	767	5,806	722,087	.....	\$75,000	.....	.....	Alumni gifts.	
College in the East.	612	.....	612	163,700	.....	\$35,000 00	200 students	Loss of tuition and increased cost of coal and labor	.....
University in the East.	1,615	.....	1,615	706,865	.....	\$145,000	.....	Loss in tuition amounts to \$125,000.	Reduction of faculty and retrenchment in administration expense for grounds and buildings and library.	Contributions sought to cover deficit.

THE COLLEGES IN WAR TIME AND AFTER

EFFECT OF THE WAR ON CERTAIN INSTITUTIONS—Continued

Institutions	Students (1916)			Income (1916)	Reduction of Income in 1917-18	Probable War Deficit	Loss in Students in 1917-18	Reasons for Deficit	Means Taken to Avoid Deficit	Remarks
	Men	Women	Total							
University in the South.	849	117	966	549,777	\$30,000	Loss in income will probably be largely offset by economies.	About 20 per cent.	Loss of tuition and increased demands of war on private benevolence.	Absence of faculty members in war work.	If losses go on work must be curtailed.
College in the East.	430	.....	430	233,550	\$25,000	.....	.....	.....	Alumni contributions.	.....
College in the West.	335	.....	335	60,245	32 per cent reduction in tuition fees.	.....	.....	.....	.....	All departments will probably be continued, but greatly curtailed.
College in the East.	1,468	.....	1,468	512,005	.....	\$60,000	One-third to one-half.	Tuition lower and increased cost of coal and labor.	.....	Do not believe it good business or good education to dis-rupt organization by curtailment. Could not have continued to operate had not new enrollment down-ment increased income.
University in the South.	871	77	948	275,000	.....	Large deficits expected, but figures not yet available.	.....	.....	.....	.....

COLLEGE FINANCES DURING THE WAR

EFFECT OF THE WAR ON CERTAIN INSTITUTIONS—Continued

Institutions	Students (1916)			Income (1916)	Reduction of Income in 1917-18	Probable War Deficit	Loss in Students in 1917-18	Reasons for Deficit	Means Taken to Avoid Deficit	Remarks
	Men	Women	Total							
University in the West.	991	490	1,481	392,169	.....	Expects no deficit, since budget was planned on reduced income.	.....	.....	.....	Has surplus fund of \$50,000 for emergencies.
College in the West.	233	209	442	84,126	None.....	.....	20 per cent..	.....	.....	Loss in students was offset by increase of tuition by 33 per cent.
....do.....	348	239	587	93,427	\$20,000	None.....	"More stars in service flag than men in college."	.....	Subscriptions from friends.	It is doubtful whether the same sources can be relied upon again to underwrite a deficit.
College in the East.	514	514	240,638	\$36,000	\$36,000	40 per cent..	Alumni contributions. Reducing expenses.	

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EFFECT OF THE WAR ON CERTAIN INSTITUTIONS—Continued

Institutions	Students (1913)			Income (1916)	Reduction of Income in 1917-18	Probable War Deficit	Loss in Students in 1917-18	Reasons for Deficit	Means Taken to Avoid Deficit	Remarks
	Men	Women	Total							
University in the West.	876	264	1,140	256,650	.....	\$40,000	.....	Loss in tuition and room rent.	Urging closing of all fraternity houses and students' entry into university dormitories. Alumni contributions.	
College in the West.	276	260	542	34,934	.....	\$5,000	.....	Loss in tuition. Increase in cost of coal and supplies.	.....
.....do.....	178	147	325	48,292	\$8,000	\$8,000	27 per cent	Loss in tuition	Private subscriptions.	"A number of institutions are likely to perish if war continues."

COLLEGE FINANCES DURING THE WAR

The reasons for college deficits are not difficult to analyze. Foremost of all is naturally the decrease in tuition fees due to the outpouring of college men for the war. The *American College Bulletin*³ estimates the total losses from this source at approximately \$2,000,000, basing this figure on investigations among a representative group, of which 74 colleges show a loss of \$468,330 while 31 others report no change in tuition receipts. A second factor is found in loss of income from college dormitories, which required approximately the same expense for maintenance though largely emptied of their former student inhabitants. As important as any of the foregoing is the increasing cost of supplies, particularly of coal. The *Bulletin* reports that 64 institutions show an increase in their budgets from this source amounting to \$353,327. Almost as immediate a reason for increased expenditures is to be found in the absolute necessity of substantial increases in salaries to meet the advancing cost of living.

The path of the college administrator, none too easy at best, had by the summer of 1918 become beset by almost insurmountable difficulties. Lack of students, undiminished and often undiminishable overhead expense, and the falling purchasing power of the dollar had combined to bring the American college to the point where a discontinuance of activities seemed to many to be not far remote. To make the matter worse, sources on which higher education had hitherto depended began to prove unreliable. War taxes upon industry and private incomes quickly dimin-

³ All statements from this publication in the present chapter are taken from the number for July 27, 1918.

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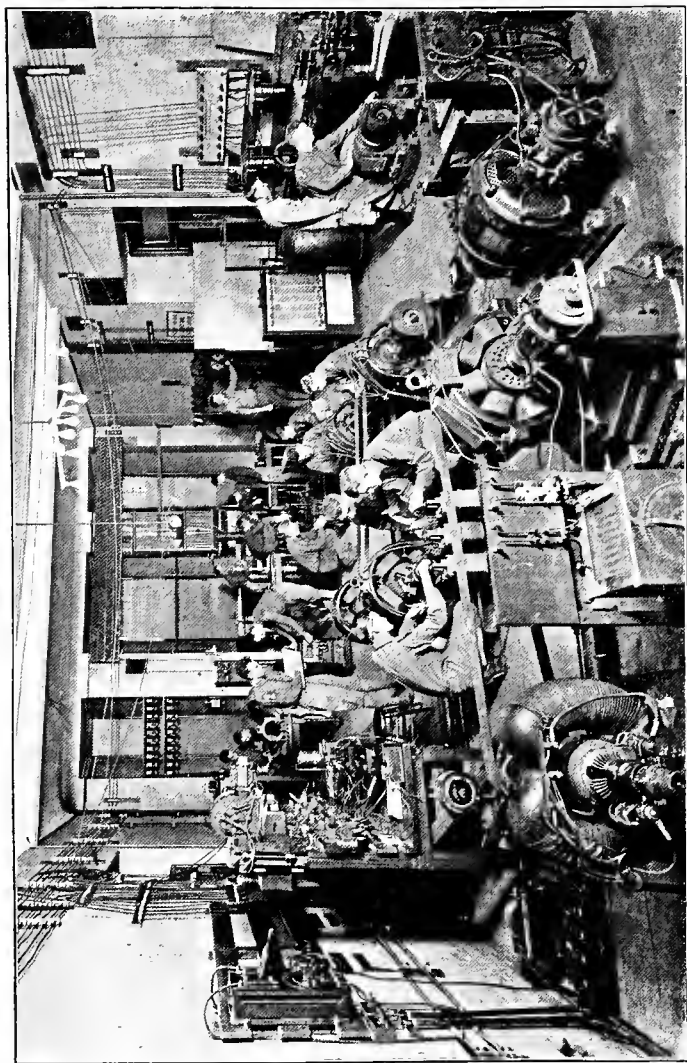
ished the flow of gifts to a minimum, and even the last expedient of raising temporary emergency funds to tide over the war period became increasingly difficult of execution.

The tendency everywhere naturally turned in this crisis toward the paring of the college budget. Many of the methods used were obvious, as, for example, reduction in faculty numbers—a policy rendered easier by the many departures for war service. In so far as can be learned, it may be said to the credit of American colleges that nowhere were actual reductions in salaries countenanced as a measure of economy. On this subject of decreased budgets the *American College Bulletin* offers an interesting study:

The most obvious way to meet losses due to the war was by rigid economy in administration. Fifty institutions report economies in instruction alone to an aggregate of \$153,000, and apparently the quality of instruction thus far has not been impaired, as the reduction in the number of students in some institutions resulted in a more economical working unit. It is true that a large number of choice faculty men have gone into various forms of war service, but they will return stronger rather than less efficient as a result of that experience.

With prices steadily rising, it has been difficult to introduce economies on the side of maintenance of institutions. For example, the University of Chicago had to pay \$45,000 more than usual for its coal, \$9,000 additional wages to unskilled employees, and \$20,000 additional for laboratory material. On the other hand, the policy of cutting off all superfluous items, even the time-honored college catalogue in some cases, has made a saving of \$167,500 distributed over forty schools.

A second method of meeting the financial problem is the general tendency to increase tuition and charges for board and room. Fully one-third of the institutions have raised



COLUMBIA UNIVERSITY U. S. AIR SERVICE RADIO SCHOOL: ALTERNATING CURRENT LABORATORY PRACTICE

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their tuition charges or decided to raise them for the coming year. The average charge of those making a change in this item was formerly \$36.20 per semester as against the new charge of \$44.70. This represents an increase of 20 per cent for the institutions which are voting an increase, but the average for the entire group would be very much less. Properly speaking, board and room are not a legitimate item in the educational budget of a college, but so many institutions assume responsibility for providing this service that the financial considerations materially affect the school. Fully one-half of those reporting which offer board and room have raised their charges from an average of \$95.50 per semester to \$108.50, an increase of 18 6-10 per cent. There is no uniformity in the charges of the 75 or more schools which replied to inquiries on this point, but the relative increase is the same all along the line.

In connection with the financial problem of the colleges the question was asked by many as to what measures might be taken upon a national scale to avert the collapse of higher education which seemed so probable. Certain college men seemed to feel that it was the duty of the Government to intervene with some plan of support which would assure the future. Others objected in advance to public support for privately controlled institutions. A question directed to a number of college presidents regarding a possible solution of college financial difficulties during the war has brought some interesting suggestions. For example, the president of a great eastern university writes as follows:

My hope is that this shortage may be made up by the alumni and friends of the University. I call attention to the fact that those who help to meet this deficit, which is caused by the war, are serving both their country and their Alma Mater in this great national crisis.

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From a smaller Pennsylvania College comes an interesting suggestion :

It has seemed to me that if Congress would create a fund for free scholarships, similar to that provided in the State of New York, but apportioning the scholarships to the institutions in proportion to the number of undergraduate students in the war service of the United States, the scholarships to cover the cost of tuition, that it might be the means of inducing enough additional students to attend college to offset the loss of students due to the war, and prevent the crippling of the educational system of the United States by an impossible burden of debt. . . . As you doubtless have figures showing the number of college undergraduates in war service, this number multiplied by an average of \$100 would indicate the amount of money required for this plan.

A Middle-Western college president believes, on the other hand, that higher education must work out its own salvation :

I am not able to see that the Bureau of Education or the United States Government can undertake anything in this matter except to call the attention of the public to the situation; and to advise those who have been considering donations to colleges and universities to make the said donations now.

This opinion, however, is not shared by the majority. Nearly all believe that the emergency warrants extraordinary measures on the part of the central Government, on the basis of the argument that the college, although privately controlled, is in reality a general public benefactor.

An Ohio president writes :

You invite any suggestions and ideas covering the form which a nation-wide policy should take in this emergency.

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It would seem to be quite as appropriate for the Federal Government to make wise appropriations to the colleges on private foundations to enable them to withstand the shock of war, as it is for the tax-supported institutions to be aided by taxation. If these colleges which have made enormous contributions to the welfare of the Republic should be destroyed by the sacrifices which they make to the winning of the war, a severe blow will have been dealt the whole country. Permit me to suggest that it might be wise for the Government to coöperate at least with a selected list of strong colleges and permit them to undertake forms of special training of men for various branches of the service. . . . We would be willing to recast our entire curriculum in order to serve in this way.

I am inclined to think the Government is not using all the resources of the country if it permits colleges as strongly equipped as ——— to be entirely stripped of its men, leaving its laboratories, equipment and dormitories vacant, while it finds it difficult to house and instruct all the special groups of students who are sent to the State universities. Could not the Bureau of Education work out a policy of coöperation between the three parties concerned, the Government, the State universities, and at least a selected group of strong colleges? ——— is admirably equipped and ready to serve along several special lines.

It is particularly worthy of mention that the above was written before the development of the idea of the Students' Army Training Corps. The principle of Government subsidy is concurred in by the next writer, another Ohio college president:

I have always believed in the complete independence of colleges conducted under the auspices of religious bodies, even though such institutions were wholly free from any legal or ecclesiastical control, as ——— College is. I do not see, however, why any principle of our Government would be violated if the Government were to reimburse institutions on private foundations to the extent that these

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institutions may have suffered directly from the call of the National Government for soldiers. Unless some such relief comes, it would seem to me that a number of worthy institutions are likely to perish if the war is long continued. The load would not fall merely upon the friends of those institutions but upon the entire nation, since the work of these institutions is carried on to the direct relief of taxpayers and, we believe, to the enrichment of the life of the entire nation, in a measure unsurpassed by any other institutions operating upon like budgets.

Two plans of temporary nature, without governmental aid, are indicated in the following from another great eastern university:

We are still debating as to whether we should open a war deficiency account and attempt to raise the entire deficit at the end of the war, or whether we should each year ask for special contributions for the deficit of that year.

The final solution for college financial troubles during the war may have been found in the establishment of the Students' Army Training Corps in every college able to muster 100 men. The policy of governmental support has there been skillfully combined with the principle of payment for actual service performed. Best of all is the fact that no college is pauperized by alms, nor is its organization threatened by any permanent control from outside sources. Entirely aside from financial considerations there is added the uplifting thought not only that the colleges can continue to exist, but that they have been found worthy to play a not inconsiderable part in the great task of winning the war.

CHAPTER XIII

HIGHER EDUCATION AFTER THE WAR

A second great test of the colleges imminent — Their value and opportunity as a reconstructive force — Nationalization of the colleges the most significant tendency in war-time education — Probable permanence of National supervision of higher education — The proposed Department of Education — Its influence on institutional standards — Probable expansion of engineering and agricultural education — The college youth before the war — Educational standards of the returned soldier — Democratizing influences on higher education of the selective draft and the Students' Army Training Corps — The college of the future, its personnel, spirit and administration — The four-quarter plan — The curriculum — Short courses and intensive training — College discipline — Military and physical training — Placement of graduates — Vocational education in the colleges — Teaching of history, modern languages and the classics — Position and opportunities of women — Scientific research — Opportunity of the American colleges for scientific leadership — Financial rehabilitation — Conclusion.

The message of war has always been laconic. Caesar's "*Veni, vidi, vici*" of twenty centuries ago is equally applicable today to the result of the international struggle upon higher education. War has come and we are war's educationally as in every other respect. But the time has come when the clutch of strife will be relaxed, when colleges and men will return to their peaceful pursuits of yesterday, and the business of organizing for war will yield to the important duties of preparation for existence in a new-made world. Now comes the second great test of the American college. It is believed by many thinking men that the college of the pre-war period

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left much to be desired in the realization of its true task in the world. One writer expresses it, perhaps with undue severity: "Before the war, the college was dangerously near intellectual bankruptcy, and since, what it has done to remain intellectually solvent has been sporadic and not entirely effectual."¹

When the stimulus of war is over, shall the college system of the United States collapse like a pricked balloon into flaccidity or shall it grow with renewed vigor from the social forces which even before the war were beginning to inspire it with new ideals? There can be but a single answer—the college is worth being saved, not passively, but as an active reconstructive force in building up the better side of life in the civilization to come. The college, whatever its detractors may say, has proved its value in the time of trial, and it may justly look forward to growth and honor in the land which it has helped to make and save. The war now happily closed was in a broad sense a college man's war. The ideas and teachings of college men led us into war, college men thought through the issues, and college men have directed its course to a successful conclusion. During the period of greatest trial colleges practically *forced* their services on the Nation. In the hour of victory our strong Americanism is being directed by trained men toward the doors of peace. With victory has come honor and opportunity in a world made safe for free men by great nations enlightened by education.

¹ M. H. Hedges, "A War Basis for Colleges," *School and Society*, Sept. 21, 1918.

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The most significant tendency in war-time education has been the nationalization of the colleges. During the war the "private" college has ceased to exist. With the coming of the S. A. T. C. plan colleges passed under Government control, and it is safe to predict that this nationalization will in some form remain a factor in higher education after the war. The actual conduct of the institutions, of course, has been reëntrusted to the original administrators, but the spectacle of all American colleges working on the same plan is too rare and edifying a sight to warrant complete obliteration. One fairly sure result of war coördination will doubtless be the creation of a national Department of Education, a step which cannot much longer be delayed. Just how to reconcile such a form of National supervision with private or state control has always been a puzzle, but war may have now shown one way toward its solution. In the event of the adoption of universal National military training, some modified form of the present S. A. T. C. plan is entirely probable as a permanent element in college life, and the consequent regulation of the supply of college students is so vital that its administration deserves the best educational skill obtainable. Such power, if exercised nationally, should be in the hands of a Government official responsible only to the President of the United States himself, an official who can work on a basis of equal authority with the War Department. A second factor of control will probably come with the increase of Government subsidies for education on a national scale, as exemplified, for instance, in the Smith-Hughes Act for vocational training. If a National University be not established

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according to pre-war proposals, the Government has it within its power to weld together most of the higher educational institutions of the country into an even greater National University by the judicious establishment of National funds to subsidize higher education for specific purposes of National import, as, for example, the training of public servants, teachers, etc. The administration of such broadly conceived projects under a National Secretary of Education would do more to standardize and unify higher education than a century of private effort, and while many may hesitate at the possible relinquishment of entire individual autonomy, the war has taught as its greatest lesson the value of a certain degree of centralized governmental control — a doctrine which the past two years have developed to unthought of proportions in our country.

A Secretary of Education with the broad powers indicated above should have in a democracy some advisory body from whom he might gain a true reflection of educational opinion in all parts of the land. Such a function might eventually fall to the lot of the American Council on Education, whose development during the war has made it representative of practically all types of higher education, or to the Joint Commission on the Emergency in Education of the National Education Association, representing especially the primary and secondary schools, or, possibly, to a combination of the two. At least it may be safely said that some such representative body should coöperate with whatever governmental supervisory authority is to be established in somewhat the same way as the civilian Advisory Board has acted

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in the work of the Committee on Education and Special Training. Access to the benefits of participation in such a body will be, let us hope, not too jealously guarded, for are we not approaching the danger line in our efforts at college standardization and the rejection of the unfit? Or perhaps more correctly expressed, have we not in a fair degree accomplished our purpose of eliminating the educational faker, and is it not time to extend a helping hand to the worthy small college still deficient in some more or less unimportant "standard," in order to help it up to take its part in the immense task of rebuilding a world?

When peace is declared and millions of young men return from overseas, living actors in the greatest of all demonstrations of practical efficiency, it is inevitable that the types of education that have done most to win the war will enter upon a career of development hitherto unknown. The first great period in the growth of engineering education in America is marked by the decade following the Civil War. The influence of the Great War with all its marvelous applications of science will doubtless double or treble the numbers of engineering students within the next few years to come. For similar reasons we may expect considerable increases in the attendance at medical schools, although here the road of preparation and selective elimination is longer and harder. But it will not be in these types of education alone that progress may be expected. Backing them all at home has been the service of the agricultural school, and as men's minds, war-weary, naturally turn to peace, so will many give themselves over to the cul-

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tivation of the earth. After the Civil War a great West was available for settlement, and thousands grasped the opportunity. No such new lands are now within easy reach, and the natural reaction under these conditions will doubtless be directed toward the intensified cultivation of familiar farms and fields. Lucky it is indeed for our homecoming soldiers that the foresight of state and nation has made possible for them the advantages offered by the generous equipments of our agricultural colleges.

The future of the United States is quite definitely dependent upon the psychological reactions of its inhabitants. It is a fact to be proud of that these reactions have ever been sound. When we fought for freedom a century and a half ago we were in the right. When we freed our fellow men in the Civil War we were upheld by the consciousness of a high altruism. In the Great War we may truthfully say that no nation has ever sacrificed its blood more unselfishly. The burden of all these mighty events has fallen upon the young man, the boy, and nobly has he answered every call. To understand more fully the college boy who will come back to us a man to make of education what he will in the future, let us consider him a moment as he went out from among us a week, a month, or a year ago. No better estimate can be found than the following words of that close student of students, President C. F. Thwing of Western Reserve University²:

The college youth is naturally patriotic. He is naturally patriotic, for he is a youth. His age—the last two years

² "University and College Men Who Have Gone into the Service," *New York Times*, July 21, 1918.

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of the second and the first two years of the third decade of his life—represents the maturing of intellect, the floodtide of feeling and the forcefulness of developing will. He sees visions. He dreams dreams. He is touched by Ambition's magic wand. New worlds are rising from the old level of humanity's long-sailed past, and he wills to be the first to set foot on these untrod shores. His country is his ideal.

It is not, however, simply his youth that makes the college man patriotic. He is also a member of a group, of a group closely woven together by many forces through the days and years. This group is not large. Its inner circle may have a circumference amounting to 10 or 20 or 30 members, its wider circumference, to 100 or 500 members. Its members, in close fraternity ties, may live together beneath the same roof, sitting chair to chair at the same dining table, sleeping bed to bed in one great dormitory room, hurling both thick sinless oaths and thin pillows at one another's heads in the convivialities of early morning revels. They may even study together the same mathematical text. In the larger relation they are children of one Alma Mater, moving into and out of the same doorways, singing the same songs, standing in daily chapel service side by side, or sitting on the same stone steps of ivy-grown hall singing the college songs. They pass the same examinations. They are led on by similar purposes and breathe the same academic atmosphere. Each mind enlightens every other. Each will moves every other. Each man influences every other man. The college represents the power and the permanence of the group. Each patriotic member of the group moves every other member also to patriotism.

The college man, further, is more willing to enter into patriotic service by reason of his freedom from certain family relations and from professional or business duties. He is a son, and may be a brother. But he is seldom a husband or a father. As a rule he has no dependents. How unlike the man who leaves a weeping wife and little children clinging to her skirts, on the railroad train, as he departs for his

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ship, each knowing that this look and this kiss may be the last.

Other conditions there are which move the college man's soul. One of them is his sense of democracy. Youth believes in the people. He hates or despises social distinctions and differentiations. He feels himself one with all. The human sense is mighty in his bosom. The case is frequent that the more aristocratic he is in birth the more democratic he is in feelings. His feelings may be at times of the aristocracy; but his principles are always democratic. The war is war for democracy. It therefore makes a special appeal to the college heart.

Allied with the sense of democracy is the appreciation of freedom. The student believes in liberty. It is one of his rallying cries. For rules he has small respect. Laws he is inclined to think are made to be broken. He is a radical. His radicalism leads him often to a conception and a practice of liberty which seem to approach license. But with every excess of feeling, with each looseness of definition, he is the disciple and the apostle of freedom. The war he knows is a war for freedom. He is ordained to put down aristocratic and monarchical rule. His heart responds.

There is one further reason which causes the college man to go to war. It is his moral passion. Moral passion is moral sentiment sharpened to a cutting edge. It is feeling devoted to ethical ends. It is ambition raised to the nth power of highest beneficence. It is sentiment touched with a sense of righteousness, quickened by a sense of wrong suffered, and moving toward results lying in the realm of character.

These forces have worked, in the last year, and more on the college man.

This is the type of the boys whom we sent out from our colleges. They will soon come back to us in numbers, and it is just possible that the cut-and-dried formalism of our old education may not satisfy men who have looked life and death in the face. A short

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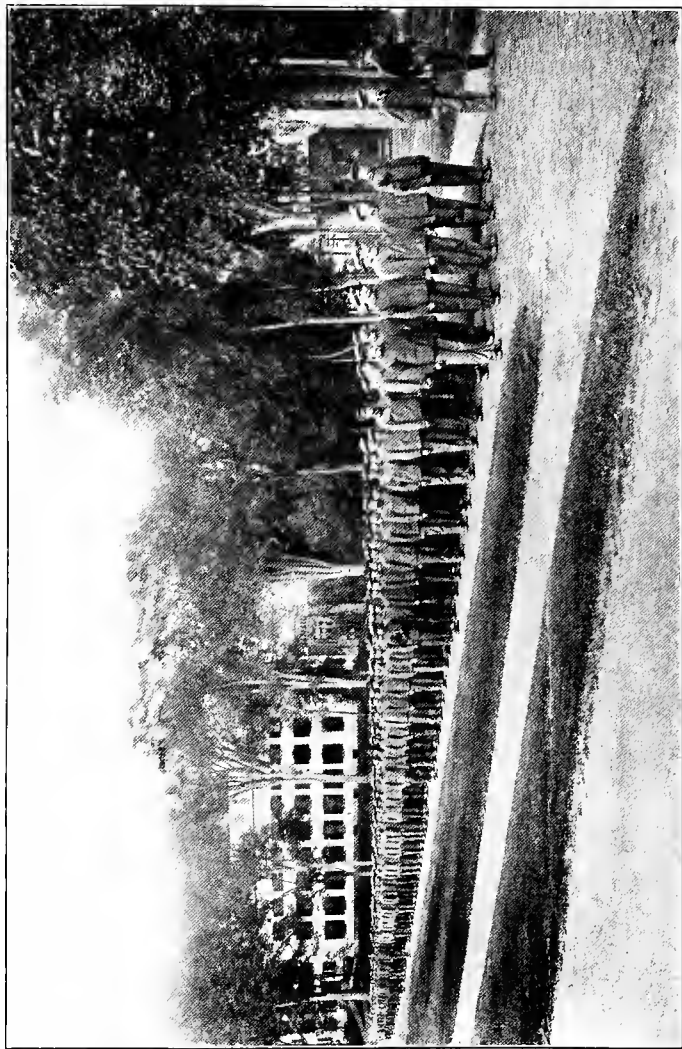
year or two ago we might regard them with the easy superiority of our own maturity — we might hedge them in with rules of conduct and prescribe their course of study with an easily assumed infallibility. Will this be true again when the soldiers of the Army of the United States return to their colleges? Doubtless not. For the first years of the reconstruction period the returned soldier, in education as elsewhere, will have to be reckoned among the most powerful of all influences. Just what frame of mind will he bring back with him regarding his Alma Mater? Soldiers' letters received in numbers point to the fact that education looms larger than ever as a desirable asset in the minds of the men in France. The Students' Army Training Corps plan will doubtless enhance this feeling considerably, since it furnishes a practical illustration of the value of college training. For a certain type of student the traditional forms of college work, the exclusiveness of academic seclusion, will always keep their charms, but the great majority of our boys in France have not only fought for democracy, but they have lived through a practical illustration of democracy which must necessarily be reflected back upon every college in the United States.

Let us examine here some of the various elements which are now at work to popularize and democratize higher education in a hitherto unattained degree. First of all in importance must be reckoned the greatest of all our democratic policies, the formation of the great American National Army and the selective draft. As a result of these, college men are taking part in the war in every conceivable capacity

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from commander to cook. Association with every type of our citizenship is taking the college man out of his narrow world of studies and leading him before his time into the world of actuality and accomplishment. Conversely, the non-college man is learning to respect the added opportunities which education gives his more fortunate brother in arms, and he himself possibly, or his children at least, will one day go to college. But this democracy is not confined to the army — it has invaded even the colleges themselves. Nearly 50,000 men of lesser education in the vocational section of the S. A. T. C. have been living for weeks in close daily contact in barracks with the students of more than 150 American colleges. The influence of these vocational units on the colleges themselves is sure to be profound, not because the men, as such, will strongly impress their individuality upon the colleges where they are stationed, for their stay is too short for that, but because our proudest colleges have in this emergency undertaken a work not strictly collegiate and have, so to say, opened up a new channel of endeavor where formal entrance requirements play no rôle and only quick results count. Even though these arrangements be discontinued when the war is over, academicism has learned that even the untraditional is possible and sometimes desirable. Such knowledge, if taken to heart, should open the way to greater mobility in the planning of curricula, the recognition of hitherto unaccredited fields of work and in college administration in general.

An additional force for democracy in education may be found in the composition of the collegiate sec-



DARTMOUTH COLLEGE TRAINING DETACHMENT OF "FIGHTING MECHANICS" MARCHING THROUGH THE
CAMPUS TO MESS, SUMMER OF 1918

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tion of the S. A. T. C. itself. Even though entrance requirements be strictly enforced, the freshmen of this year are like the freshmen of no other year in history. Men who graduated from secondary schools two or three years ago, and, having gone into business or trade, never expected to enter college halls, rub shoulders with new graduates several years their juniors. The boy just graduated, who would otherwise never have represented "college material," is this year attracted by the promise of the S. A. T. C. And who may say that some of these men whom the colleges would otherwise never have seen would not have made excellent officer material and gone forth to add glory to their colleges and their country? And who may say that even we faculty members who guide the destinies of colleges may not learn certain valuable lessons from this new type of student? For the war will do much to teach the students but even more to teach the faculty. Scarcely a college in the land has failed to send out teachers into some form of war work, and the effect of such practical contacts with the world must necessarily leaven the reactionary academic lump.

All of these elements and contacts must necessarily result in considerably increased attendance at all types of colleges when the war is over. Just as the common outlets of trade and production have been dammed up by the war, so have the sources of supply of college students been abnormally cut off for the past year or two, and our returning armies should bring back to the colleges a flood tide of matriculants. Many, it is true, will have lost forever their desire for so unexciting a process as education, but probably

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many more will welcome eagerly the resumption of mental activity after the long period of largely physical effort. And more and more will it be true that colleges will recruit their students from every class of society. The pledge made to the Nation by so many institutions of their entire resources at the outbreak of the war has been accepted at its full value, and when the war is over the colleges, let us hope, may remain the people's, whether they be actually supported by taxation or so called "private" institutions. For truly the day of the "private" institution in the old narrow sense is gone—it has passed with the passing of war, and the new social obligation of colleges of all types is clear in the land.

The college of the future will differ from the college of the past, not only in the spirit of its endeavor, but also in many details of its actual administration. At the request of the War Department all colleges having S. A. T. C. units operated on the four-quarter plan, and thus was accomplished at a stroke the result recommended in vain by the May, 1917, college meeting at Washington. It is probable that when the war is over many institutions will continue this system, which has long been in successful operation at the University of Chicago. Even a few high schools have been reported as adopting the plan, doubtless to fit their closing periods into the S. A. T. C. system, which contemplated induction every three months. The arguments for the four-quarter system are so numerous and obvious as well as familiar that they need no repetition here. What has kept the colleges from its adoption was doubtless primarily academic inertia and dislike of any innova-

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tion which meant a wholesale recasting of the course. Such recastings in accordance with the S. A. T. C. requirements are now so general that the professorial mind has acquired an unwonted nimbleness in dealing with new situations, and this facility will doubtless stand the colleges in good stead in making just such long desired changes as are exemplified in the adoption of the four-quarter plan. If the plan becomes general it will make possible a college course in three years and will thus at a stroke accomplish the much desired result of entrance into the professional school at an earlier age. The four-quarter plan will also have a favorable effect upon the salaries of college instructors at a time when the call for increases has become imperative. So many of the best men have been transplanted outside their academic walls by war calls that inevitably many will never return unless the teaching profession can offer remuneration more nearly comparable with the rewards possible in other work. The four-quarter plan will allow employment during the entire year, if the teacher so desire, at a proportionately increased salary, and will permit the occasional vacation to be taken during any quarter desired. This situation, together with the general trend toward higher salaries caused by the war, bids fair at last to bring the remuneration of the college instructor a little nearer to the figure which he rightly deserves.

Administration of the college curriculum and its attendant circumstances after the war gives much room for prophecy and conjecture. Inevitably there will exist considerable confusion and considerable lack of uniformity in practice between different in-

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stitutions. Before the war the many collegiate associations had brought about a fairly general degree of standardization in matters of this sort, so that transfer from one institution to another had come to be accomplished with a minimum loss of time and effort. The war has brought new courses, new divisions of the year, new methods of administration, and it is inevitable that some time must elapse after the close of the war before the former degree of uniformity can be restored. Unfortunately we have no generally recognized central authority to undertake problems of this sort. There exists, it is true, a National Conference Committee on Standards which is fairly representative but whose work is unfortunately not so generally known or followed as it deserves to be. Possibly some such generally constituted body as the American Council on Education may see fit to appoint a much needed Committee on Standardization of College Practice after the war.

As a result of the war we shall doubtless carry out our educational programme of the future under the force of a number of new influences. The lesson which we are now learning from the War Department of short, intensive preparation for a definite purpose should hardly be wasted. Just as the agricultural colleges have offered "short courses" for specific ends, so we may now expect to see in our colleges an increase in work of this type. It has been hard for us to learn to think of ourselves as existing for any other purpose than to give degrees at the end of a course several years in length. The War Department, however, has said: "During the war you are no longer degree-giving institutions, but rather short-course

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training schools for the specific purpose of preparing officers for the army and navy." The war has lasted long enough for us to begin to see more clearly the value of this point of view and we shall doubtless adopt it in part to govern our courses when the war is over. The principle of training intensively for a definite purpose has come to stay.

What else may the colleges learn from the military control? First of all, college administrators may take a lesson from the discipline of the army. True, the college has no such complete control of the students' life and future as has the Army, but it has the power to insist upon the same promptness and the same devotion to duty, and it may enforce these qualities by withholding its stamp of academic approval in the form of credits and degrees when obligations are slackly met by students. Unless, however, the entire faculty adopt this viewpoint and it become the standard of the institution, the efforts of the individual will be in vain. The principle of "learning by doing" is exemplified in the organization and activity of the S. A. T. C., and as a direct result we may expect further recognition of this educational doctrine in the college of the future. The soldiers who return to us will be "doers," not theorists. Our education will have to offer more of the actual contact with life and the actual practice of life's activities in the course of the regular curriculum than has hitherto been the case. It is probable that "field work" and "coöperative courses" will be developed in an ever increasing degree after the war.

The possibilities just mentioned bring up the really primary consideration, as to just what the future of

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military control in the colleges is to be. A period of war has made of us a military nation and has militarized our system of higher education. What is the result to be? Naturally the control of the National Government was relaxed when the actual conflict had passed, but many thinking men believe that the contact, once established, will never be allowed to lapse utterly. Its actual future depends doubtless upon the permanent military policy adopted by the country at large after the peace. Universal military training, as already stated, would probably bring with it a certain definitely specified and officially organized form of military training for all colleges. Even if official connection be severed entirely, military training as a collegiate branch of instruction is likely to continue for many years to come, and its effect on the colleges cannot be other than beneficial. In one point particularly is this true. It gives the opportunity for physical development to all, and the heaven of this idea will, we hope, penetrate to physical education generally at our colleges, so that this may eventually become all-inclusive rather than highly selective in nature. The Committee on Education and Special Training has by its programme brought about a sort of physical democracy that it would be most unfortunate to lose. Possibly the War Department when the war is over, may be farsighted enough to continue and to extend its control over the physical development of the young men of the country, for in this lies much of our preparedness for war.

The proper placement of the college product seems a problem as worthy of solution in time of peace as

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in time of war. An Intercollegiate Intelligence Bureau should be as important and necessary a factor in the future as in the past. During the period of the war the work of this organization has been assumed by the War Department. Its continuance after peace has been declared would form a splendid activity for a newly created Department of Education, and with this might well be associated some of the activities now handled by the Committee on Classification of Personnel in the Army. Such a continuous national survey of the available college material of the country for the uses of peace, with a view to its placement in the most advantageous way, should do much to increase the usefulness of the colleges in the future.

The war has brought numerous changes in the content of the curriculum, and these changes must naturally have their effect upon the academic programme in years to come. In the matter of vocational training, for example, it is possible that the excursion into this field, occasioned by the programme of the Committee on Education and Special Training, may not be terminated by the end of the war, since not only have its results been so obvious as to warrant consideration of its continuance in some modified form, but another Federal body as well, the Federal Board for Vocational Education, has indicated its desire to use collegiate facilities in the work of the reëducation of wounded soldiers.³ Such activities have clearly shown hitherto unthought of possibilities in the use of college and university equipment, and it

³ On this subject see, in this series, Garrard Harris, *The Redemption of the Disabled*.

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is not unthinkable that this field may continue to interest those in charge of higher education.

Such a contact with industry will tend also to encourage the study of the technical sciences, and it is not impossible, in view of the achievements of technology during the war, that the Nation may grow to regard the furtherance of this type of work as a measure of National protection. Just as the development of our present common methods of transportation increased the horizon of civilization and gave impetus to science and invention, so will the war-time development of the airplane spell immediate advance in technological studies. The present shortage of engineers for industrial and educational uses may be slightly relieved when the war is over, but the decrease in the present production of engineering-school graduates, the mortality at the front, and the increased calls of industry and education after the war will doubtless preclude for many years to come an oversupply of technical talent.

Other developments in the curriculum are at best problematical at this time. "War courses" will of course disappear as such, but they will leave behind new conceptions and purposes in nearly every department of college work. History, above all, will be charged with the high duty of teaching truth and patriotism. The doctrine of undiluted Americanism must become an integral part of all such instruction, and the past and future of the United States must be treated from now on in their international relations. The future of modern-language teaching is not so clear. Manifestly we can countenance nothing which savors of propaganda in behalf of any foreign nation,

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and manifestly, too, we cannot exclude permanently from our sphere of knowledge the life and activity of the peoples of Central Europe. Native American teachers and carefully edited texts will go far toward solving the problem. The study of French as a major college subject has doubtless come to stay, and, in a lesser degree, Spanish as well. In all probability these two languages will continue to occupy for many years the place formerly held by German, particularly in the secondary schools. If present conditions foreshadow the future, German will assume a position as a purely collegiate subject, not commonly taught in the secondary school. Classical study, it is to be feared, will suffer from the war rather than gain. Not only has it been excluded from the S. A. T. C. programme, but the thoughts of the Nation are turning ever more to the "practical" studies. It should be the solemn duty of the colleges to encourage classical study in every possible way in the years to come, so that its humanizing influence may not be entirely lost to our modern civilization.

Whatever the result in the world of National politics, in the college world at least woman has won her equal rights with man. Her sacrifices have been as great and her patriotism has burned with no duller flame. The war has affected her college work profoundly. Her courses, like those of men, have been shaped for war purposes, and this type of work will unquestionably influence college women's curricula for a long time to come. In a sense war has brought back to woman the pioneer duties from which she had often departed so far, as for example, nursing, the preparation of food, etc. For the future, however, it

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has done even more by opening to her various technical pursuits that had hitherto been regarded as foreign to her field. A recent bulletin from the American Council on Education seeks trained women as agricultural workers, bacteriologists, chemists, dietitians, draftsmen, engineers, geographers, mathematicians, etc. The lack of men has opened these fields to women for the first time, and the colleges of the future will have to plan women's courses to supply the demand for trained women which will doubtless continue after the war is over. The trained college woman has already become a force in the land, and the war and its ensuing period of reconstruction will not diminish her influence.

Most vital to the progress of the Nation, though usually working unseen, is academic activity in the field of scientific research. What effect will the war have upon research in the colleges and universities of the future? During the actual progress of hostilities much effort is naturally turned toward investigations for purely war purposes. College faculties are likewise depleted by calls to service, so that a period of less production in research of a constructive nature is natural in war times. The exact degree in which research may be expected to suffer by loss of workers alone, however, is not so large as might be expected. At the request of the National Research Council, the Bureau of Education addressed to the colleges during the spring of 1918 a questionnaire intended to ascertain the extent to which faculties and graduate departments have been depleted by the war. This information was sought "with a view of learning the possibilities of con-



VASSAR COLLEGE: SPRING PLOUGHING AND CORN PLANTING ON THE COLLEGE FARM



VASSAR COLLEGE: STUDENTS TAKING THE PLACE OF MEN IN MOWING THE COLLEGE LAWNS

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tinuing fundamental university work and research with added emphasis after the war." The following figures from more than 200 institutions show that college instructors remain in sufficient numbers to assure the progress of research both now and in the time of peace to come:

	Number at Time of Declaration of War by United States	Number Absent on Government Work		Number Who Have Left with no Arrangement for Returning at Close of War
		Non-scientific Military Service	Scientific Service on War Problems	
Professors.	5,828	378	275	293
Associate Professors..	1,012	67	54	45
Assistant Professors...	1,938	219	116	129
Instructors.	4,077	525	163	440
Assistants.	1,666	235	89	192
Other grades.	1,376	139	33	78
Total.	15,897	1,563	730	1,177

The loss in graduate students has naturally been considerably larger, only 5,221 remaining at the end of the academic year 1917-18, as compared with 7,595 at the time of the declaration of war.

It is only natural that war problems should crowd out the type of research undertaken in times of peace. Witness is borne by the following statements made to the Bureau of Education:

Practically all scientific research has been directed into war channels. (*University of Wisconsin.*)

Research in purely scientific lines — *e.g.* chemistry, physics, biological sciences — rather increased than modified

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owing to amount of war research going on in our laboratories. (*Princeton University.*)

Research in metallurgy and geology has been seriously taken up only since the war began. (*University of Arizona.*)

At a few other institutions research of all sorts has been seriously interfered with, but these are in the minority:

Early in the war research work was increased to some extent. Since that time so many of our instructors and research men have gone into war work that those remaining have little time to devote to research, though some research work, particularly in chemistry, is constantly in progress. (*Throop College of Technology.*)

Research work has diminished in every scientific department — due to the departure of graduate students of draft age. (*Brown University.*)

Research diminished by the enlistment of graduate male students during 1917-18. (*University of Washington.*)

Ten departments report that twenty-seven different lines of investigation have been dropped as a result of war conditions. (*Cornell University.*)

It is evident from the foregoing that constructive research work for the ends of peace has suffered severely during the time of war. This is due to the pressure of the war situation and to the decrease in the numbers of graduate students. Actual faculty losses, while appreciable, are not so serious as to threaten the future of research after the war, especially in view of the fact that most faculty members will return to their posts when peace is declared. Our permanent loss of trained workers in scientific

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research is not to be compared to that in most other belligerent countries, and for this reason the United States should be enabled to assume a leading position in science when the war is over. Particularly is this true if the National Government continue as its peace policy the same degree of stimulation of research as has been the case during the war period. One of the most vital and useful bonds which could help to unite the colleges under National leadership would be the liberal expenditure of Government funds in the promotion of research in colleges along lines of value to the people.

The problem of college finances was met to a certain extent by the adoption of the S. A. T. C. plan which provided for full dormitories and large student bodies. The whole question, however, has not been solved. No relief is provided for the rising costs in materials and salaries, nor for the accumulated deficits of the first year and a half of the war. The meeting of these items will cause anxiety for many an institution, but relief seems to be in sight as the war ends. The period of industrial prosperity which commonly follows war will doubtless render possible in most cases the raising of funds sufficient to meet accumulated war-time obligations, since the war services of the colleges and their official recognition by the Government should prove their value beyond all doubt to the prospective benefactor. In plain language, it should be easier than ever before to raise money for colleges after the war.

The war has come as a time of trial to the colleges of the United States. Had it come twenty years ago it is doubtful whether the services which then lay in

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their power to perform would have brought them through the ordeal with the same degree of honor and acknowledged usefulness as is now the case in this great war of the present day. But it cannot be too strongly insisted upon that the war must be regarded from the college viewpoint not only as a trial but also as the greatest of opportunities. The growth of contact between the college and the world, due largely to the close relations between science and industry, had prepared the way for the development of the sense of responsibility to society that has marked college life during the last two decades. No more fitting preparation could have been found for the great ordeal of war. It is as if civilization itself had begun years ago to make ready the academic world for the services that were to be demanded in the great crisis. And now, when that crisis is nearly past, when the sun of peace has begun to shine, the colleges of the United States may in serene confidence look ahead to the years to come, may in all humility realize that they have done their part in freeing the world, and may justly expect to share in the rewards of the future.

APPENDIX I

SOME TYPICAL COLLEGE WAR ORGANIZATIONS AND REORGANIZATIONS

The problem of reorganizing college work on a war basis naturally increased in complexity with the size of the institution. At the outset few colleges seemed to realize the necessity of a new system of organization for war, hence we have few records of formal plans of this sort. In the case of three institutions, however, the University of Illinois, Columbia University, and Brown University, definite statements on this point are available and are herewith reprinted.

1. THE UNIVERSITY OF ILLINOIS¹

The appointment of the War Committee was authorized by action of the Board of Trustees December 11, 1917. In accordance with this authority the President of the University appointed a committee of seven, as follows: Dean Eugene Davenport, Professors S. A. Forbes, F. H. Newell, S. P. Sherman, C. A. Ellis, C. M. Thompson and the Vice-President, Professor David Kinley. This committee, having organized, voted to ask the Governor of the State, Hon. Frank O. Lowden, the President of the University, Dr. Edmund J. James, and the Chairman of the Illinois State Council of Defense, Hon. Samuel Insull, to permit the use of their names as honorary chairmen. They assented to this request.

The War Committee of the University of Illinois was appointed for these purposes:

¹ From the *University of Illinois Bulletin*, Jan. 7, 1918.

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1. To give information about the war to the students and faculty of the University.

2. To spread similar information among the people of the state by lectures and articles, and to furnish the press with news items.

3. To publish war leaflets on topics of interest to the people of the state.

4. To coördinate the work of the many organizations and individuals now engaged in different lines of "war work" at the University.

5. To raise and maintain a University service flag.

6. To keep records of the University men and women in the Government service, especially in the Army and Navy.

7. To stimulate in every way interest in military work and in the war.

By authority of the Board of Trustees a general committee of seven was appointed by the President of the University.

This committee organized by selecting three honorary chairmen, who have consented to the use of their names, and by providing divisional committees as follows:

DIVISIONAL COMMITTEES

1. *On the Publication of War Leaflets:*

The duty of this committee is to publish leaflets of from one to four pages on subjects of importance concerning the war, for distribution in large editions among the people of the state. Pamphlets of larger size may also be printed and distributed occasionally. The committee has four divisions, each with its own chairman, as follows: (a) Agriculture; (b) Food; (c) Politics, international law and history; (d) General topics.

2. *On Publicity:*

The duties of the committee on publicity are to gather and give to the newspapers, through the Associated Press and otherwise, all important items of news about the work of the committees; to secure from members of the faculty articles for publication in periodicals, and in every way to

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disseminate information on the activities of the committee. The committee has two subdivisions: (a) News; (b) Periodical articles.

3. *On Talks and Lectures at the University:*

The duty of this committee is to provide short talks and occasional lectures for the University as a whole and for separate groups and organizations therein on subjects connected with the war. A group of sub-committees will be constituted by the members of the committee, consisting of one faculty and one or more student members from the different student organizations. Each of these sub-committees is expected to provide talks for one or more organizations from week to week or month to month.

4. *On Extension Lectures in the State:*

The duty of the committee is explained by its title. Members of the University faculty on the Farmers' Institute programmes will be expected to devote some part of their talks to war topics. Requests for war talks from public schools, teachers' associations and other educational bodies will be supplied as far as possible. The third division of the committee will care for similar requests from Women's Clubs, Commercial Clubs, churches and other organizations and individuals.

5. *On Funds Collection:*

Beginning January 1, 1918, all individuals or organizations desiring to canvass or to offer entertainments in the University for funds destined for purposes connected with the war must submit to this committee a request for approval so to canvass. The committee will issue cards of authorization. The committee will give advice as to the best time for soliciting so that campaigns to raise funds for different purposes will not conflict. The committee may, if it sees fit, initiate a collection campaign for some appropriate war purpose. Authority to perform these services has been given by the Council of Administration.

6. *On the University Programme:*

The duty of this committee is to study the University class schedule, utilization of rooms, courses offered, etc., with a view to determining whether a more efficient use can

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be made of our equipment and rooms, whether any condensation of courses offered seems advisable, and whether new short courses bearing on the war may be provided. The committee will make its recommendations or suggestions to the central committee which will then take the matter up with the proper University officers.

7. *On United States Savings Certificates and Loans:*

This committee is appointed to arouse interest in and promote the sale of United States savings certificates, liberty bonds and other loans of the Government in connection with the war.

8. *On Students' Coöperation:*

The duty of this committee is to bring about coöperation between the faculty and students in all things undertaken at the University with relation to the war.

9. *On the University Service Flag:*

The duty of this committee is to provide and raise with appropriate ceremonies, and later to maintain, a University service flag.

10. *On University War Service Records:*

Since the beginning of the war the Dean of Men has kept a record of the members of the University, past and present, who have entered or expect to enter the Government service in connection with the war. The war committee, realizing that it could make no better provision for carrying on this work, simply adopts Dean Clark's staff as its committee on this work. To this Dean Clark has consented. The Committee therefore consists of Dean A. T. Clark and his staff on this work.

11. *On University War Employment:*

This committee secures information concerning the location, occupation, qualifications and availability for service, of students, faculty and alumni, and keeps in touch with the various Government departments so that when individuals are needed for special work we may be able to recommend and place suitable members of the University.

This work, like that described under committee number 10, has been carried on from the beginning of the war, and

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has been done by the Assistant Dean of the College of Engineering, Dean H. H. Jordan, Chairman.

12. *On Military Organization and Exhibition:*

The duty of this committee is to participate in a military way in occasional affairs planned by itself or in connection with the work of other committees.

13. *On Conservation and Economy:*

The duty of this committee is to influence the University community to economize as far as possible in their mode of living, materials consumed, etc. It is believed that the boarding houses, fraternities and sororities can be assisted to a more economical scheme of expenditure, and that there is room for economy in expenditures connected with public functions of the various University organizations.

14. *On Legal Advice to Drafted Men:*

Certain members of the law faculty have been appointed associate members of the Legal Advisory Board, Division No. 1, Champaign County (including Urbana), and also associate members of Legal Advisory Board Division No. 2, Champaign County (including Champaign), and are listed, with their consent, as one of the divisional war committees.

The Selective Service Regulations issued by President Wilson, November 8, 1917, provide for a classification of drafted men not yet called to the colors in order to determine as to each, "the place in the military, industrial or agricultural ranks of the nation in which his experience and training can best be made to serve the common good. This project involves an inquiry by the Selective Boards into the domestic, industrial and educational qualifications of nearly ten million men." For this purpose an elaborate questionnaire has been mailed to the registered men. A Legal Advisory Board, consisting of three members appointed by the President, together with associate members designated by the Boards themselves, is established in each registration locality whose duty is to give advice concerning rights and obligations under the Selective Draft Act and Regulations, and to assist registrants in making full and

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true answer to the questionnaire. Every registrant is expected, and by some Boards at least required, to confer with a member of an Advisory Board before he writes his answers.

2. COLUMBIA UNIVERSITY ²

THE UNIVERSITY'S ADMINISTRATIVE ORGANIZATION FOR WAR WORK

1. *The General Assembly.* On February 6, 1917, at noon, a General Assembly was held to voice the University's loyalty to the President in the crisis attending the breach in diplomatic relations with Germany. The speakers were President Butler, Professors Giddings and Erskine, and Dean Keppel. Cards were distributed at this meeting on which willingness to serve the Nation in the crisis was to be indicated. (See *Alumni News*, February 9, 1917.)

2. *The University Census.* On the afternoon of February 12, a Committee of the Faculty met with the President of the University to formulate and institute plans for work. Professor H. E. Crampton proposed a plan for organizing the teaching staff into eight corps for enrolling officers, graduates and students of the University in such fashion as to determine specific qualifications for service. (See *Alumni News*, March 2, and 9, 1917.)

In the preparation, mailing and receipt of the cards of registration, Mr. F. A. Dickey, Registrar, and his staff were of great assistance. In all, about 55,000 cards were sent out. By May 11 about 18,000 cards had been returned.

The classification of the cards by sex, ability, equipment possessed, and geographical location was undertaken by the Division of Statistics, Professor R. E. Chaddock, Chief; Mr. Ross, Assistant, and the Columbia University Mobilization Committee for Women's War Work to which the women's cards were turned over. The cards for the men were classified according to the mobilized staff scheme and duplicates were sent to the Division chiefs. Mr. W. E.

² From the *Columbia Alumni News*, March 15, 1918.

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Harned and his students of the Secretarial school prepared the duplicate cards.

The Bureau of Education of the Department of the Interior adopted the Columbia Mobilization plan as a model for the registration of educational institutions, and a descriptive circular was sent by the bureau to the presidents of colleges and universities throughout the country. (See *Alumni News*, April 13, 1917.)

3. *The Administration of Military Training.* The University possessed at the time of our entrance into the war no departments for military training. Emergency training corps were promptly organized, however, by the Eighth, or Military, Training Corps, of which James Dnane Livingston, '80, is Chairman.

About April 10 a Military and Naval Bureau was established in East Hall with David Keppel, '01 F. A., as Executive Secretary. (See *Alumni News*, April 13, 1917, p. 676.) This bureau finished its work on June 10, when Mr. Keppel entered the service of the Government at Washington. The success of the undergraduate drill, the large number of men who went to the first series of officers' training camps, and the establishing and the success of Camp Columbia are in large measure due to Mr. Keppel's efforts. He secured the services of Captain (then Lieutenant) R. Hodder-Williams as officer of military instruction for the camp, and so provided an administrator of the military training at the University.

On April 17, the Staff Corps constituted an Executive Committee on Military Affairs with the following personnel: Professor H. E. Crampton, '93, Chairman; Professors James C. Egbert, '81, and Charles E. Lucke, '03, Ph.D., J. D. Livingston, '80, Frank D. Fackenthal, '06, and John J. Coss, '08 A.M. This committee was to assist the Eighth Corps in matters requiring the coöperation of University instruction. The Executive Committee on April 19, appointed John J. Coss, '08 A.M., its executive secretary with his office in 321 University Hall. Professor Crampton subsequently requested Mr. Coss to act as his adjutant in

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the general work of the University mobilization. (See *Alumni News*, April 27, 1917, p. 714.)

Mr. Coss has published in the *Alumni News* lists of war service opportunities which are open to college men, and kept office hours daily in 321 University Hall for the purpose of answering inquiries regarding these positions or other types of military service, until on January 7, 1918, when he took up in Washington work with the War Department Committee on Personnel of the National Army. His work was then taken over by the Appointments Committee of the University.

4. *The Committee on Women's War Work.* The Columbia University Committee on Women's War Work, Miss Virginia Newcomb, Executive Secretary, began its work on April 10, with offices in 301 Philosophy Hall. This Committee took charge of the registration cards of the women of the University, and in October sent out 15,000 cards for a re-registration made necessary by the character of the calls for service which were coming in. To acquaint University women with the various lines of useful war work nine bulletins were printed and something over 30,000 copies were distributed. The Committee has coöperated with Extension Teaching and the Summer Session in interesting women in special training for war work, and has been in touch with all the more important Committees in New York City for women's work. Over 5,000 applicants for positions or information have been interviewed, and a large number of volunteer and paid positions have been filled. (See *Alumni News*, December 21, 1917.)

5. *The Farm Employment Bureau.* A farm bureau was established on April 16, in East Hall. Joseph J. Brown, '18, and later Dr. Evans acted as Executive Secretary. (See *Alumni News*, October 12, 1917.)

6. *Administration of New Courses.* Expansion in the way of new courses was provided primarily by the administration of Extension Teaching and Teachers College.

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3. BROWN UNIVERSITY³

A RADICAL REORGANIZATION OF THE UNIVERSITY TO MEET WAR AND AFTER-WAR CONDITIONS

Details of Brown University's new policy, the salient features of which were announced yesterday, disclose, first of all, that the institution does not propose to retrench in any direction. Rather it plans to maintain itself at the highest point of efficiency. Brown will be a year-round college, military or naval training will be compulsory, every course will be conducted in such a manner as to have a direct bearing on war and after-war conditions and all students will be trained for some specific national service.

The main features of the new programme are:

a. The University is to be in session throughout the year, three terms of about sixteen weeks each, in order to make it possible for a student to complete his college course in three years, and in most instances before he reaches the draft age. Attendance on the Summer term will be optional.

b. The freshman year to be a period in which the student will take a course largely prescribed but planned to insure an early acquaintance with correct methods of doing college work, to open the eyes of the student to new interests, and to help him decide upon his course of study in the subsequent college years. A period in which the capabilities, interests and limitations of the student will be considered with a view to his adaptability for prospective work in college and afterwards.

c. The sophomore, junior and senior years to be a second period in which the principle of "concentration" which has worked very satisfactorily in the Ph. B. course will be applied to courses for both degrees. The concentration plan to be modified, however, so that the groups of studies shall refer to the prospective career of the student rather than to departments of the University. The purpose of this change is to insure some degree of mastery in a definite group of subjects. It is not incompatible with a broad education.

³ From the *Boston Transcript*, August 2, 1918.

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d. Personal advice and direction to determine the student's course of study, a committee on student electives to be created. Present requirements for the degrees to stand unless inconsistent with the new plan, but the committee on student electives to be authorized to allow substitutions in individual cases, when requirements interfere with desirable concentration.

e. Military and naval courses and physical training to be encouraged. The University continues to recognize the importance of furnishing the student with the general culture, esthetic appreciation, and fundamental insight into the moral and social problems which every intelligent person will be required to meet and solve. In modifying the curriculum to meet the needs of the present emergency it has two immediate objects in view. The first object is to provide each student with the knowledge and skill which will be most useful in the national service during the war; the second object is to furnish the student with specific training that he may later utilize in the period of reconstruction after the war.

The effort on the part of the colleges to adapt themselves to war conditions had produced results before the end of the first year. Below are given examples of the war work of three types of institutions: a woman's college, a great university, and a college of agriculture.

4. SMITH COLLEGE ⁴

STUDENT WAR ACTIVITIES IN 1917-1918

The most striking response to war conditions which Smith College has made has been, of course, the S. C. R. U. [Smith College Reconstruction Unit]. In common with other colleges, however, Smith has shown in the daily life of the campus its realization that the country is at war. The best kind of evidence of this realization — greater seri-

⁴ From a report to the Bureau of Education, July 17, 1918.

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ousness of purpose, more thoughtfulness, more diligence — has not been lacking, but is difficult to prove and to illustrate. It may perhaps make its presence felt in the following brief *résumé* of things done and things left undone in consequence of the war. These things may be classified as activities, subscriptions, self-denial, and preparation for service.

The most obvious war activity on the campus has been knitting. Both for the Unit and for the Red Cross an enormous amount of wool has been manufactured into garments. For the Unit the following articles were completed:

Sweaters	475
Bonnets and caps.....	356
Scarfs	120
Mittens	12 pr.
Afghans	20
Helmets	10
Stockings	12
Miscellaneous	60

For the Red Cross the list to date is as follows:

Sweaters	1,200
Socks	1,655
Helmets	269
Mufflers	137
Wristlets	201
Comfort kits	126
<hr/>	
Total	3,588
Gifts	114
Handed over to Chapter.....	3,702 articles

The interest of the College in surgical dressings was effectively enlisted on the day of the opening of College last fall when Major Goldthwait told of the work he was going abroad to do, and asked the assistance of the students in the preparation of dressings. These were first made directly for the War Department; but we have since had instructions to work under the Red Cross, and a Red Cross nurse has been here throughout the spring term training students and supervising the work. The assembly room in the Students

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Building is now used entirely for surgical dressings. The number of dressings produced during the year is 103,280. Many students will, of course, continue this work during the summer, and about 59 will be able to teach after a short, more advanced course (about 5 lessons) the making of dressings. There have been great fluctuations of output during the year, and readers of the *Weekly* know how candidly these and the failures to keep appointments have been published to the world. Nevertheless, the organization has improved steadily, and we shall undoubtedly be able next year to maintain a steady production.

To speak of marching in a parade as a war activity is perhaps absurd, and yet at no time this year has the College registered its loyalty so effectively as on April 19, when faculty and students marched in a body in the Liberty Loan parade. The faculty was present in larger numbers than it has ever been at Commencement or on the 22nd of February. Some 1,600 students marched in service and Red Cross sections and by classes, and made by so much the most inspiring part of the parade that Northampton rang with their praise.

The following table shows the amounts subscribed by students and faculty for various war purposes. These figures are in some respects misleading, for many members of the faculty and staff made their subscriptions to the Liberty loans through banks, so that the College has no record of them.

	<i>Totals</i>
Subscriptions to Red Cross through May.....	\$10,300.00
Second Red Cross Drive.....	4,340.00
Students Friendship Fund.....	12,463.38
Unit.....(something over)	6,014.00
Armenian-Syrian Relief.....	650.00
Second Liberty Loan.....	.....
Third Liberty Loan.....	38,000.00
Thrift and War Savings.....	237.00
Amounts earned for various objects by entertainments:	
Unit.	1,511.13
Red Cross.	50.00
Athletic equipment for two air squadrons....	600.00

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There is no record, of course, of the sacrifices of individuals because of the war; 1,622 students, however, pledged themselves in November to refrain from buying candy made of white sugar until the sugar shortage should be relieved. In general, the students have acquiesced most willingly in the food conservation measures adopted by the College. At present, the campus houses have undertaken to go without wheat flour for the remainder of the year. As we do not bake our own bread, a small amount of flour will be consumed in the bread served at one meal each day; but in no instance will this consumption amount to more than 6 or 7 ounces of wheat per person per week.

It is well known that the Junior Class gave up its promenade this year, as 1918 did a year ago. After much discussion, of the ways in which Commencement could be simplified, the Senior Class voted to omit the costliest and most time-consuming events of Commencement—Dramatics, and Ivy Day. The Inauguration and Commencement together, therefore, will occupy only two days.

Three types of courses of study have come into being in this college as a consequence of the war. The first of these is the technical course so designed as to enable students who have already a solid foundation in theory to make immediate practical application of their knowledge. We have two courses of this type—"Hospital Laboratory Technic," which fits students to become assistants to physicians in war hospital laboratories; and "Mental Hygiene and Mental Reconstruction," planned for the benefit of Seniors who have shown something of a bent for psychology and who are interested in the rehabilitation of disabled soldiers. Open only to selected and well-prepared students, these courses amply deserve the academic credit given them. So also do the general and informational courses, "Economic Aspects of the War," and "French Literature and the War," which illustrate the second type of course resulting from the present situation. The third type is that of the strictly emergency course, less definitely related to the usual work of the college, and not offered for credit, but important enough to be organized and administered under college

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auspices. We have three courses of this sort — the first a course in Civilian Relief, an adaptation of the Red Cross Home Service Institute, which is open to Seniors who have a definite plan to use it; "Food and Nutrition in Relation to the War," which is outlined by the Food Administration and is intended to fit Juniors and Seniors to assist the experts who in the different states carry on the great campaign of conservation; and "Foundations of Garden and Farm Practice," which the Department of Botany will offer during the spring term to students who expect to devote the summer to Adam's profession. With the consent of the College, also, though not at its instigation, students are doing certain other work for emergency purposes. Automobile repairing and typewriting and stenography come under this head. It is impossible to say how many of our students will undertake definite service during the summer. The numbers enrolled in the various courses, however, give some evidence of intentions.

Candidates for certificates in:	
Food Administration Courses.....	300
Students taking lessons at Business	
College	168
Enrolled in automobile repair classes...	20
“ “ Farm and Garden Practice.	35
	(+ 10 faculty)
“ “ Hilltop Farm Unit.....	93
“ “ Home Service Institute....	10
“ “ Hospital Laboratory Technic	6
“ “ Mental Hygiene and Mental	
Reconstruction	17

Mr. Frederic C. Walcott, of the Food Administration, who spoke here last week, has said that the audience was the most responsive body he has ever addressed. The college is responsive, and has shown itself to be so by its accomplishment. Undoubtedly, however, the efficiency of the college in bringing the lessons of the war home to its students will be measured by their devotion and their intelligence when they go out from its immediate guidance, and have all their time at their command.

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5. UNIVERSITY OF PENNSYLVANIA ⁵

Many special schools and courses have been established at the University of Pennsylvania and instruction given practically without expense to the Government, the University furnishing not only the halls, laboratories and equipment, but also the members of the teaching staff.

Among these are the following:

1. An Ordnance School:

The first of its kind in the United States; used as a model throughout the country. Courses conducted by Lieutenant A. H. Williams and members of the University teaching staff. Transferred to Camp Hancock in May, 1918. Number enrolled, 650.

2. School of Navigation:

Courses given in Engineering Building by members of University Faculty. Number enrolled, 400.

3. Officers' School of Plastic and Oral Surgery:

Offered to U. S. A. officers detailed by the Government from all parts of the country. Conducted by members of the University Faculty at Evans Museum Dental Institute, University of Pennsylvania. (Only one other university in country giving such a course.) Number enrolled, 98.

4. Courses in Radio Communication:

Given in Engineering Building by members of University Faculty.

5. Special courses in Contemporary European History and Contemporary American History offered by History Department.

6. Special French courses.

7. Member of Faculty in Engineering School to take charge of special course in Motor Mechanics to be given to 500 men in the Engineering Corps, U. S. A.

8. Officers' School of Neurological Surgery:

Given in Medical School by Dr. Charles H. Frazier and Staff. Offered to Officers detailed by War Department. Number enrolled, 38.

⁵ From a report to the Bureau of Education, May 29, 1918.

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9. Course for Officers in General War Surgery and Fractures. Medical School. By Dr. Edward Martin and Staff.

10. Course in Orthopedic Surgery for Army Officers. Medical School. By Dr. G. G. Davis and Staff.

11. Rooms in Medical Laboratory Building used by Reserve Aviation Examining Corps. This Corps was organized by a University of Pennsylvania man, as was also thirty other Corps throughout the United States, and most of the examiners were trained in the Medical Building.

12. Quarters in Medical School are being occupied by the United States Medical Advisory Board.

13. University of Pennsylvania Base Hospital No. 20 organized and equipped. (Now overseas.)

14. Medico-Chi Hospital of the University of Pennsylvania used by Red Cross.

16. Special courses in the University Hospital are being given for the training of Nurses' Aides, and facilities increased for training of regular nurses.

17. 200 beds have been put at disposal of Army and Navy, as also the entire Surgical Pavilion at the southwest corner of 34th and Spruce Streets.

18. Law School Building used for conducting Navy examinations.

19. Henry Phipps Institute Laboratories turned over to the Surgeon General of the U. S. Navy for the study of the prevention and treatment of tuberculosis in the Army and Navy. Medical staff of the Institute assisting in research work and in practical work at the various cantonments near Philadelphia and at League Island.

The use of the Institute as a Naval Hospital has been offered when needed.

The Phipps Institute is a distinct department of the University, and consists of a \$300,000 plant at 7th and Lombard Streets.

20. Veterinary Bacteriological Laboratories taken over by Government as Headquarters for the study of the cause, prevention and treatment of diseases of Army animals. Under direction of Major S. H. Gilliland.

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21. Most of the rats and mice used in the United States Experimental Laboratories are furnished by the Wistar Institute of the University of Pennsylvania.

22. Practically every student in the Medical, Dental and Veterinary Schools of the University of Pennsylvania — 1,255 in number — is a member of the Medical, Dental or Veterinary Reserve Corps. They are enlisted men and are completing their courses at the University under Government orders. The same is true in a lesser degree of the Engineering School.

23. A Reserve Officers' Training Corps has been established at the University of Pennsylvania under the direction of Major Griffith. 542 students enrolled.

24. Intercollegiate Intelligence Bureau founded by Dean Wm. McClellan, of the University of Pennsylvania. Nearly 200 universities, colleges and technical schools brought into membership. Thousands of technically trained graduates placed in important war positions. Bureau recently taken over by War Department.

25. Ninth U. S. Engineer Corps used University grounds and buildings during their encampment here. Privileges of Houston Club, Gymnasium, swimming pool, etc., extended to them. Free lessons in French given in Houston Hall to members of Corps. Negotiations now under way to use University grounds for similar encampment in 1918.

26. Special campaigns for Liberty Loans, Red Cross Funds, Y. M. C. A. and Christmas boxes conducted by University on Campus with success.

27. In the spring of 1917 University furnished more than 1,000 students to help on farms.

28. More than 200 members of the University Faculty released for special war work.

5,600 students and alumni known to be in military service at the present time.

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6. NEW YORK STATE COLLEGE OF AGRICULTURE AT CORNELL UNIVERSITY ^c

1. In order to allow our students the maximum freedom for work on farms the University granted leaves of absence to students in good standing during the months of April to June of last year without prejudice to class standing. Nearly one-half of our male students left for work on farms. This year (1917-18) all holidays and recesses, with the exception of a brief period at Christmas, were omitted from the terms and the college year condensed so that our students were dismissed at the end of the third week in May instead of the middle of June, and college will not reopen until October 8, allowing about four and one-half months for farm work.

2. The war has depleted the high schools of the State of their teachers of agriculture. At the request of the State Education Department we are this year offering a special nine weeks' training course for teachers of vocational agriculture, to be taken by persons who are above the draft age for the purpose of meeting the needs of the schools.

3. Last summer three brief special training schools for extension workers in home economics were offered. This summer we are offering special short courses for dairy testers and poultry selection, the latter to prepare persons to help farmers select their best stock to be maintained during the period of high prices.

4. Since war was declared the College of Agriculture has coöperated closely with the New York State Food Supply Commission and its successor, the New York State Food Commission, in the emergency war work with which these Commissions were charged by the Legislature. Two members of our staff, the Dean and the Vice-Director of Extension, Professor M. C. Burritt, were members of the New York State Food Supply Commission. The President of the University, J. G. Schurman, is a member of the present New York State Food Commission, and Professor

^c From a report to the Bureau of Education, June 13, 1918.

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H. E. Babcock, State Leader of County Agents, has been granted temporary leave of absence to act as Director of the Bureau of Conservation of the State Food Commission. A very large part of the work of all of these agencies has been handled through the county farm bureau organization, the administration of which is located at the College.

5. When war was declared a year ago fifteen extension specialists of the College of Agriculture were detailed to fifteen counties in the State having no farm bureaus to act as temporary agents and as enumerators in connection with an agricultural census that was to be taken. These persons set up temporary organizations in these counties, which have resulted since in the establishment of thirteen additional county farm bureaus, completing the farm bureau organization in all of the really agricultural counties in the State.

6. The New York State Food Supply Commission coöperating with the College and using the machinery of the farm bureaus, took a state-wide agricultural census in the spring of 1917. Its successor, the New York State Food Commission, took a similar census in a similar way in the spring of 1918. The compilation of the results of both of these censuses was made by the Department of Farm Management of the College.

7. The Department of Poultry Husbandry of the College, coöperating with the State Commissions and the New York State Federation of Poultry Associations, conducted a poultry educational campaign to encourage efficient management of poultry flocks so as to enable poultry experts to purchase eggs and market poultry in spite of the abnormally high prices of feed, labor, and equipment. The selection of profitable fowls was a leading feature of the work, resulting in the elimination of more than three hundred thousand unprofitable hens from the farm flocks in the State. The work is being continued.

8. The extension specialists of the College of Agriculture, coöperating with the county agricultural agents, have worked out in all of the counties emergency programmes of work.

9. In order to extend the influence of the farm bureau

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associations, membership campaigns have been waged, resulting in an increase in average membership throughout the State from 9.5 per cent. of all farmers in 1916 to 15.8 per cent. in 1917 and 18.1 per cent. in 1918.

10. The Department of Farm Management has collected and tabulated data on the cost of producing milk for the Federal Food Administration and has furnished information on the cost of production and other statistics called for by various authorities on food and agriculture for emergency purposes.

11. The Department of Plant Pathology of the College, coöperating with the Food Supply Commission and the United States Department of Agriculture, conducted emergency plant disease control measures throughout the State last summer, and similar work is contemplated for the present summer. This consisted of the following separate phases:

(a) Potato disease control measures under the supervision of seven county field agents, resulting in the correct spraying for the first time of more than fifty-one hundred acres of potatoes.

(b) Inspection of potato fields by two inspectors to secure disease-free seed potatoes for 1918, resulting in the certification of 923 acres.

(c) Control of fruit diseases in seven counties, with nine special field agents.

(d) A campaign of oat smut control demonstrations.

(e) A plant disease survey in which fifty-two persons in forty-five counties of the State reported plant disease conditions in their counties to the College at stated times, the purpose being to determine the earliest appearance, distribution, and severity of various plant diseases.

12. Similarly the Department of Entomology, coöperating with the New York State Food Supply Commission, maintained an insect control service for the protection of fruit and vegetable crops, with two special field agents.

13. The Department of Rural Engineering, coöperating with the State emergency commissions and the county farm bureaus, has aided in the direction of the tractors and ditch-

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ing machines purchased by the State for war purposes. Most of the field work of the ditching machines has been done under the supervision of members of the College staff.

14. War-time food production and food conservation exhibits were made at State and county fairs, and the College aided in staging the state exhibit at the Milk and Dairy Farms Exposition held recently in New York City. The State made a special appropriation of \$30,000 for this exhibit, staged coöperatively by the State College of Agriculture and the State Department of Agriculture.

15. A demonstration car emphasizing the importance of properly grading and sorting potatoes was run over the Lehigh Valley lines in seven counties, the aim being to help safeguard the large production of potatoes last summer.

16. The Department of Home Economics of the College, coöperating with the office of Home Demonstration Agents, the emergency State commissions, and the United States Department of Agriculture, has carried chief responsibility for the emergency food conservation work throughout the State. During the summer of 1917, thirty-six counties were enlisted with temporary organizations and the employment of special county food conservation agents. During the past winter this work has been reorganized and placed on a more nearly permanent basis with a responsible county executive committee, a local contribution of at least \$300, and provision for office space and equipment. Twenty-eight counties have been reorganized on this more permanent basis. These agents have stressed particularly the following lines:

(a) Demonstrations in food preservation.

(b) Demonstrations in the making of liberty breads, the use of sugarless recipes, and the use of potatoes.

(c) Campaign to increase the use of milk.

17. On March 1 the College released Professor Van Rensselaer, of the Department of Home Economics, for temporary appointment by Mr. Hoover as Director of the Home Conservation Division of the United States Food Administration.

18. All of the regular courses of instruction in foods,

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clothing, and extension in the Department of Home Economics have been adapted since war was declared to emergency needs.

19. During the past year the extension staff of the Department of Home Economics has attended more than two hundred meetings throughout the State in the interests of food conservation.

20. The Department of Home Economics, coöperating with the emergency food commissions and the United States Department of Agriculture, has aided in the organization and administration of food conservation activities, including the appointment of special agents in seven of the larger cities of the State. This Department has also aided in the organization of a very large number of community kitchens throughout the State.

21. Several members of the food staff of the Department of Home Economics have undertaken experimental cookery as related to food conservation. These experiments have been the basis of recommendations to food conservation agents in the counties and cities of the State. In this connection special attention has been given to drying of fruits and vegetables and publications thereon prepared for distribution.

22. In July and August, 1917, the Department of Home Economics, coöperating with the New York State Food Supply Commission and the New York Central Railroad, ran food demonstration cars over the New York Central lines.

23. The bakeshop of the Department of Home Economics has conducted experimental cookery and placed its results at the service of the United States Food Administration, and it has been used as a laboratory to test recipes for the Administration. The head baker has given demonstrations in the making of war breads in the State.

24. The Department of Home Economics through the Office of Information has maintained a news service for the papers of the State. During the canning season last year it ran a daily item entitled "A Can a Day," giving information concerning the canning and preserving of different

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fruits and vegetables. Throughout the past winter it has maintained a similar service, giving daily menus adapted to the seasons and to the food regulations and conditions. The Department has also prepared a vast amount of circular material on food subjects for the use of county agents and organizations throughout the State.

25. The College has issued forty emergency publications, mostly mailing cards, involving a total issue of 3,155,000 copies.

26. In coöperation with the United States Department of Agriculture, the College has greatly expanded the junior extension activities, especially in the field of school and home gardening and food and clothing projects for country girls.

27. The Department of Rural Engineering of the College conducted two emergency farm tractor schools of three weeks in length each at the College last winter. In coöperation with the New York State Food Commission, it assisted in the conduct of twenty farm tractor schools of one week each held in different parts of the State.

28. As part of the war work the New York State Food Supply Commission aided in the establishment and supervision of camps for boys engaged in farm work. Professor Works, of our Department of Rural Education, served the Commission in studying and supervising a number of these camps.

29. The central office of farm bureaus at the College, coöperating with the United States Department of Agriculture, has maintained a labor specialist who has worked with the county agricultural agents in securing and placing the necessary labor.

30. The College released members of its staff in dairy industry to aid the United States Department of Agriculture in its campaign for the production and utilization of milk products.

APPENDIX II

THE RESERVE OFFICERS' TRAINING CORPS

1. ACT OF AUTHORIZATION

THE NATIONAL DEFENSE ACT OF JUNE 3, 1916, SECTIONS 40 TO 53

SEC. 40. *The Reserve Officers' Training Corps.*—The President is hereby authorized to establish and maintain in civil educational institutions a Reserve Officers' Training Corps, which shall consist of a senior division organized at universities and colleges requiring four years of collegiate study for a degree, including State universities and those State institutions that are required to provide instruction in military tactics under the provisions of the act of Congress of July second, eighteen hundred and sixty-two, donating lands for the establishment of colleges where the leading object shall be practical instruction in agriculture and the mechanic arts, including military tactics, and a junior division organized at all other public or private educational institutions, except that units of the senior division may be organized at those essentially military schools which do not confer an academic degree but which, as a result of the annual inspection of such institutions by the War Department, are specially designated by the Secretary of War as qualified for units of the senior division, and each division shall consist of units of the several arms or corps in such number and of such strength as the President may prescribe.

SEC. 41. The President may, upon the application of any State institution described in section forty of this act, establish and maintain at such institution one or more units of the Reserve Officers' Training Corps: *Provided*, That no such unit shall be established or maintained at any such

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institution until an officer of the Army shall have been detailed as professor of military science and tactics, nor until such institution shall maintain under military instruction at least one hundred physically fit male students.

SEC. 42. The President may, upon the application of any established educational institution in the United States other than a State institution described in section forty of this act, the authorities of which agree to establish and maintain a two years' elective or compulsory course of military training as a minimum for its physically fit male students, which course when entered upon by any student shall, as regards such student, be a prerequisite for graduation, establish and maintain at such institution one or more units of the Reserve Officers' Training Corps: *Provided*, That no such unit shall be established or maintained at any such institution until an officer of the Army shall have been detailed as professor of military science and tactics, nor until such institution shall maintain under military instruction at least one hundred physically fit male students.

SEC. 43. The Secretary of War is hereby authorized to prescribe standard courses of theoretical and practical military training for units of the Reserve Officers' Training Corps, and no unit of the senior division shall be organized or maintained at any educational institution the authorities of which fail or neglect to adopt into their curriculum the prescribed courses of military training for the senior division or to devote at least an average of three hours per week per academic year to such military training; and no unit of the junior division shall be organized or maintained at any educational institution the authorities of which fail or neglect to adopt into their curriculum the prescribed courses of military training for the junior division, or to devote at least an average of three hours per week per academic year to such military training.

SEC. 44. Eligibility to membership in the Reserve Officers' Training Corps shall be limited to students of institutions in which units of such corps may be established who are citizens of the United States, who are not less than fourteen years of age, and whose bodily condition indicates that they are

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physically fit to perform military duty, or will be so upon arrival at military age.

SEC. 45. The President is hereby authorized to detail such numbers of officers of the Army, either active or retired, not above the grade of colonel, as may be necessary, for duty as professors and assistant professors of military science and tactics at institutions where one or more units of the Reserve Officers' Training Corps are maintained; but the total number of active officers so detailed at educational institutions shall not exceed three hundred, and no active officer shall be so detailed who has not had five years' commissioned service in the Army. In time of peace retired officers shall not be detailed under the provisions of this section without their consent. Retired officers below the grade of lieutenant colonel so detailed shall receive the full pay and allowances of their grade, and retired officers above the grade of major so detailed shall receive the same pay and allowances as a retired major would receive under a like detail. No detail of officers on the active list of the Regular Army under the provisions of this section shall extend for more than four years.

SEC. 46. The President is hereby authorized to detail for duty at institutions where one or more units of the Reserve Officers' Training Corps are maintained such number of enlisted men, either active or retired or of the Regular Army Reserve, as he may deem necessary, but the number of active noncommissioned officers so detailed shall not exceed five hundred, and all active noncommissioned officers so detailed shall be additional in their respective grades to those otherwise authorized for the Army. Retired enlisted men or members of the Regular Army Reserve shall not be detailed under the provisions of this section without their consent. While so detailed they shall receive active pay and allowances.

SEC. 47. The Secretary of War, under such regulations as he may prescribe, is hereby authorized to issue to institutions at which one or more units of the Reserve Officers' Training Corps are maintained such public animals, arms, uniforms, equipment, and means of transportation as he

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may deem necessary, and to forage at the expense of the United States public animals so issued. He shall require from each institution to which property of the United States is issued a bond in the value of the property issued for the care and safekeeping thereof, and for its return when required.

SEC. 48. The Secretary of War is hereby authorized to maintain camps for the further practical instruction of the members of the Reserve Officers' Training Corps, no such camps to be maintained for a period longer than six weeks in any one year, except in time of actual or threatened hostilities; to transport members of such corps to and from such camps at the expense of the United States so far as appropriations will permit; to subsist them at the expense of the United States while traveling to and from such camps and while remaining therein so far as appropriations will permit; to use the Regular Army, such other military forces as Congress from time to time authorizes, and such Government property as he may deem necessary for the military training of the members of such corps while in attendance at such camps; to prescribe regulations for the government of such corps; and to authorize, in his discretion, the formation of company units thereof into battalion and regimental units.

SEC. 49. The President alone, under such regulations as he may prescribe, is hereby authorized to appoint in the Officers' Reserve Corps any graduate of the senior division of the Reserve Officers' Training Corps who shall have satisfactorily completed the further training provided for in section fifty of this act, or any graduate of the junior division who shall have satisfactorily completed the courses of military training prescribed for the senior division and the further training provided for in section fifty of this act, and shall have participated in such practical instruction subsequent to graduation as the Secretary of War shall prescribe, who shall have arrived at the age of twenty-one years and who shall agree, under oath in writing, to serve the United States in the capacity of a reserve officer of the Army during a period of at least ten years from the date of

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his appointment as such reserve officer, unless sooner discharged by proper authority; but the total number of reserve officers so appointed shall not exceed fifty thousand: *Provided*, That any graduate qualified under the provisions of this section undergoing a postgraduate course at any institution shall not be eligible for appointment as a reserve officer while undergoing such postgraduate course, but his ultimate eligibility upon completion of such postgraduate course for such appointment shall not be affected because of his having undergone such postgraduate course.

SEC. 50. When any member of the senior division of the Reserve Officers' Training Corps has completed two academic years of service in that division, and has been selected for further training by the president of the institution and by its professor of military science and tactics, and has agreed in writing to continue in the Reserve Officers' Training Corps for the remainder of his course in the institution, devoting five hours per week to the military training prescribed by the Secretary of War, and has agreed in writing to pursue the courses in camp training prescribed by the Secretary of War, he may be furnished, at the expense of the United States, with commutation of subsistence at such rate, not exceeding the cost of the garrison ration prescribed for the Army, as may be fixed by the Secretary of War, during the remainder of his service in the Reserve Officers' Training Corps.

SEC. 51. Any physically fit male citizen of the United States, between the ages of twenty-one and twenty-seven years, who shall have graduated prior to the date of this act from any educational institution at which an officer of the Army was detailed as professor of military science and tactics, and who, while a student at such institution, completed courses of military training under the direction of such professor of military science and tactics substantially equivalent to those prescribed pursuant to this act for the senior division, shall, after satisfactorily completing such additional practical military training as the Secretary of War shall prescribe, be eligible for appointment to the Officers' Reserve Corps and as a temporary ad-

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ditional second lieutenant in accordance with the terms of this act.

SEC. 52. The President alone is hereby authorized to appoint and commission as a temporary second lieutenant of the Regular Army in time of peace for purposes of instruction, for a period not exceeding six months, with the allowance now provided by law for that grade, but with pay at the rate of \$100 per month, any reserve officer appointed pursuant to sections forty-nine and fifty-one of this act and to attach him to a unit of the Regular Army for duty and training during the period covered by his appointment as such temporary second lieutenant, and upon the expiration of such service with the Regular Army such officer shall revert to his status as a reserve officer.

SEC. 53. No reserve officer or temporary second lieutenant appointed pursuant to this act shall be entitled to retirement or to retired pay and shall be eligible for pension only for disability incurred in line of duty in active service or while serving with the Regular Army pursuant to the provisions of this act: *Provided*, That in time of war the President may order reserve officers appointed under the provisions of this act to active duty with any of the military forces of the United States in any grades not below that of second lieutenant, and while on such active duty they shall be subject to the Rules and Articles of War: *And provided further*, That The Adjutant General of the Army shall, under the direction and supervision of the Secretary of War, obtain, compile, and keep continually up to date all obtainable information as to the names, ages, addresses, occupations, and qualifications for appointment as commissioned officers of the Army, in time of war or other emergency, of men of suitable ages who, by reason of having received military training in civilian educational institutions or elsewhere, may be regarded as qualified and available for appointment as such commissioned officers.

THE COLLEGES IN WAR TIME AND AFTER

2. GENERAL REGULATIONS

GENERAL ORDERS, } WAR DEPARTMENT,
No. 49. } WASHINGTON, *September 20, 1916.*

The following regulations and instructions governing the establishment, administration, and maintenance of the Reserve Officers' Training Corps at educational institutions and the issue of Government property thereto in accordance with existing law are published for the information and guidance of all concerned.

These regulations will be known as the Reserve Officers' Training Corps Regulations (R. O. T. C. R.).

I. GENERAL PRINCIPLES

[Act of June 3, 1916, Section 40, omitted.]

1. The primary object of establishing units of the Reserve Officers' Training Corps is to qualify, by systematic and standard methods of training, students at civil educational institutions for reserve officers. The system of instruction herein prescribed presents to these students a standardized measure of that military training which is necessary in order to prepare them to perform intelligently the duties of commissioned officers in the military forces of the United States, and it enables them to be thus trained with the least practicable interference with their civil careers.

2. It should be the aim of every educational institution to maintain one or more units of the Reserve Officers' Training Corps in order that in time of national emergency there may be a sufficient number of educated men, trained in military science and tactics, to officer and lead intelligently the units of the large armies upon which the safety of the country will depend. The extent to which this object is accomplished will be the measure of the success of the Reserve Officers' Training Corps.

RESERVE OFFICERS' TRAINING CORPS

II. CONSTITUTION

[Act of June 3, 1916, Section 41, omitted.]

3. The Reserve Officers' Training Corps shall consist of the units established by the President in those universities, colleges, and schools which shall have applied for admission of such units to membership in the corps, and shall have agreed to the regulations prescribed by the Secretary of War for the government and training of said units.

4. Units of the senior division may be organized at civil educational institutions which require four years' collegiate study for a degree, including State universities and those State institutions that are required to provide instruction in military tactics under the provisions of the act of Congress approved July 2, 1862, donating lands for the establishment of the colleges where the leading object shall be practical instruction in agriculture and the mechanic arts, including military tactics, and at essentially military schools not conferring academic degrees but specially designated by the Secretary of War.

5. Units of the junior division may be organized at any other public or private educational institution.

6. Before any unit, senior or junior, of the Reserve Officers' Training Corps may be organized at any institution there must be enrolled at the institution not less than 100 physically fit male students not less than 14 years of age; and the authorities must agree to maintain under the prescribed course of military instruction and training not less than 100 of such students. The prescribed course, when entered upon by any student, shall, as regards such student, be a prerequisite for graduation.

7. In those institutions established and maintained under the provisions of the act of July 2, 1862, all students are required to take military training pursuant to the provisions of said act.

8. A civil educational institution desiring to have established thereat one or more units of the Reserve Officers' Training Corps should apply to The Adjutant General of the Army for admission of such units to membership in the

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corps; but no unit will be admitted unless the conditions laid down are fulfilled and the institution is, in the opinion of the Secretary of War, capable of efficiently carrying out the work prescribed.

9. The Secretary of War may cancel the membership of any university, college, or school unit, should he consider that its work, as part of the Reserve Officers' Training Corps, is not in keeping with the object for which the corps is established.

III. CONTROL

10. For purposes of organization and control the Reserve Officers' Training Corps is directly under the supervision of the Secretary of War, but questions of administration, maintenance, and inspection shall, so far as practicable, be under the control of the several department commanders in whose departments the institutions are located. This will insure a systematic and orderly assignment of such officers as are graduated from the Reserve Officers' Training Corps to the reserve units or to training camps for the purpose of undergoing the annual summer training prescribed in section 48 of the act of June 3, 1916.

11. University, college, and school authorities will retain their ordinary powers of supervision and control.

12. All units will be considered as Federal units and are organized for the purposes before quoted.

IV. ORGANIZATION

13. The Reserve Officers' Training Corps will be organized into two divisions:

(a) The senior division, composed of units at universities and colleges requiring four years' collegiate study for a degree and all units at those essentially military schools which do not confer academic degrees, but which, as the result of an inspection by the War Department, are specially designated by the Secretary of War as qualified for units of the senior division.

(b) The junior division, composed of units organized in all other institutions.

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14. The university or college contingents may be made up of one or more units, and one or more arms of the service may be represented.

15. Members of the Reserve Officers' Training Corps will be organized into companies, batteries, troops, ambulance companies, field hospitals, battalion, or squadrons, and regiments, the organization, drill, and administration of which shall conform as far as possible to that laid down for similar units in the Regular Army.

16. The strength of the several units to be organized in both divisions shall be as follows:

Infantry.—The strength of an Infantry company will not exceed 80 nor be less than 50. Should the strength of an Infantry unit be made up of two or more companies, it may be organized into one or more battalions, and two or more battalions may be organized as a regiment.

At institutions where the Infantry or Cavalry instruction has progressed to such a stage as to insure proficiency in the work, a machine-gun contingent may be organized; but special permission in every case will be obtained before such organization is undertaken.

Field Artillery, Cavalry, Engineers, Signal Corps, Coast Artillery Corps, and Medical Corps.—The organization of units other than Infantry will be made at institutions with due regard to the facilities offered for the special type of instruction, and no such unit will be organized unless special authority of the War Department is obtained.

17. In the junior division for the present only Infantry units will be organized.

18. Members of the Reserve Officers' Training Corps may be trained and employed as members of the band, provided their prescribed military training is not interfered with.

19. The rules and orders relating to the organization and government of the members of the Reserve Officers' Training Corps, the appointment, promotion, and change of officers, and all other orders affecting the military department, except those relating to routine duty, will be made and promulgated by the professor of military science and tactics

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after consultation with the chief administrative officer of the institution.

20. The appointment of cadet officers and noncommissioned officers for units of the Reserve Officers' Training Corps will be made from members of the junior and senior classes and from members taking postgraduate courses, provided there are a sufficient number. It is the intention to give the student entering the advanced course the benefit of an opportunity of training in a responsible rather than in a subordinate position, and also to permit the professor of military science and tactics to determine his proficiency at different periods of the practical part of the prescribed course. It will also afford the professor of military science and tactics the opportunity to recommend that said student discontinue his work in the department in case he is not found to be competent and his work not up to the required standard.

V. CONDITIONS OF SERVICE

21. Eligibility to membership in the Reserve Officers' Training Corps shall be limited to students of institutions in which units of such corps are established who are citizens of the United States, who are not less than 14 years of age, and whose bodily condition indicates that they are physically fit to perform military duty, or will be so upon arrival at military age.

22. No member of the Army, Navy, or Marine Corps of the United States, or of the National Guard or Naval Militia, shall be eligible for membership in the Reserve Officers' Training Corps.

VI. ASSIGNMENT OF OFFICERS AND NONCOMMISSIONED OFFICERS

[Act of June 3, 1916, Sections 45 and 46, omitted.]

23. When application is made in the form for the establishment of a unit of the Reserve Officers' Training Corps at any institution to which an officer of the Regular Army has not previously been detailed, it will be visited by an officer detailed by the commander of the department in which

RESERVE OFFICERS' TRAINING CORPS

the institution is located. After such inspection this officer will report to the War Department, through the department commander, whether or not the institution fulfills the requirements of law and regulations governing such details, and will recommend specifically whether the detail should be made.

24. All details of officers at civil educational institutions for duty with units of the Reserve Officers' Training Corps will be for four years, unless sooner relieved.

25. Whenever practicable orders detailing an officer to relieve another as professor or assistant professor of military science and tactics will direct him to report at the institution during the school year, preferably at the end of the first semester or the beginning of the spring semester and not less than two weeks prior to the relief of his predecessor.

26. Professors of military science and tactics will retain copies of all returns, reports, and correspondence and will keep an accurate journal of the drills and other military instruction. They will transfer these records to the officer or officers who may succeed them, or to the person designated by the chief administrative officer of the institution. In either case a receipt will be taken for the records.

27. Professors or assistant professors of military science and tactics will reside at or near the institution to which assigned, and when in the performance of their military duties will appear in the proper uniform. They will, in their relations to the institution, observe the general usages and regulations therein established affecting the duties and obligations of other members of the faculty. They will not, without permission of the Secretary of War, undertake any course of study in the institution or perform duties in or out of the institution other than those of instructors in the department of military science and tactics, which may include the duties of commandant of cadets.

28. It is the duty of the professors of military science and tactics to enforce proper military discipline at all times when students are under military instruction, and in case of serious breaches of discipline or misconduct to report

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the same to the proper authorities of the institution, according to its established methods. Should suitable action not be taken by such authorities within a reasonable time, the facts will be reported to The Adjutant General of the Army through the department commander.

29. Enlisted men detailed for duty with units of the Reserve Officers' Training Corps will be ordered to report to the senior officer on duty at the institution for instruction. They will be reported by the latter to the president of the school or college and also instructed in their relations to the institution and to its officials. They will reside at or near the institution and perform no duties other than those of assistants to the professors of military science and tactics and of acting ordnance and quartermaster sergeants.

30. No professor or assistant professor of military science and tactics will be authorized to accept a commission in a unit of the National Guard.

31. Both officers and enlisted men shall be apportioned with due reference to the kind of unit undergoing training, endeavor being made to provide a suitable instructor for each type of unit.

VII. TRAINING

[Act of June 3, 1916, Sections 43 and 48, omitted.]

32. The following courses¹ prescribed under the provisions of the above-quoted sections of the act of June 3, 1916, are designed to develop the greatest possible initiative on the part of the student, and they also provide that the cadet officers and noncommissioned officers shall participate in the administration and training and share the responsibility therefor.

33. As the object of all training in the Reserve Officers' Training Corps is to bring the largest possible number of cadets up to the proper standard of proficiency, permission to be absent, unless there are exceptional circumstances, should be granted only for physical disability. Any member who is absent from any part of the instruction shall be

¹ Appendix II to General Orders, No. 49, quoted subsequently.

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required, subsequently, to make up the omitted training before being credited with the number of units necessary for graduation.

34. Close order drills and ceremonies have a disciplinary value and effect not to be obtained in any other manner and serve as the groundwork upon which to build the military character and discipline of cadets; but, proficiency in such drills should not be considered or treated as the final result to be accomplished in a season's training.

[Act of June 3, 1916, Section 50, omitted.]

35. Any member of the senior division who has completed two academic years of service in that division, who has been selected for further military training by the president of the institution and the professor of military science and tactics, and who executes the following written agreement, will be entitled, while not subsisted in kind, to the commutation of subsistence fixed by the Secretary of War in accordance with law:

.....,
....., 191 .

In consideration of commutation of subsistence to be furnished me in accordance with law, I hereby agree to continue in the Reserve Officers' Training Corps during the remainder of my course in

(Institution.)

to devote five hours per week during such period to the military training prescribed, and to pursue the courses of camp training during such period, prescribed by the Secretary of War.

Witness:

36. The instruction required should be coördinated with the college schedule, and the hour or hours of instruction, so far as is possible, should come before 4:30 in the afternoon.

37. Every effort should be made to obtain the coöperation of the military department with other departments of the institution, for the reason that some of the courses pre-

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scribed for the instruction of the reserve officer are now being taught, to a certain extent, by other departments of the institution.

38. A history course in the college may readily be specialized in such as to give all the necessary instruction in the military history of certain wars to the students taking the military training course. The subject of hygiene, camp sanitation, etc., may be taught by the professor of hygiene. First-aid instruction may be carried out by instructors in the Medical College.

39. An especially interesting opportunity for such coöperative teaching would be found in problems of governmental administration and transportation, which naturally would become a specialty of the men teaching administration and transportation in the department of economics and government.

40. There is an increasing demand throughout the country for teachers of high-school grade who are able to give military instruction. It may be deemed desirable by the college or department of education to encourage those taking teacher's courses to fit themselves to give military instruction, for by so doing they would be adding an important asset to their professional equipment. Other possibilities in the way of coöperation between different faculties will no doubt be effected as time goes on.

41. As soon as practicable in institutions the graded courses prescribed by the Secretary of War will be taken up in the freshman class and carried through to a consistent end as prescribed by these regulations, it being the intention to provide a full four years' graded course for this work.

42. Any graduate of the senior division under 21 years of age at date of graduation, or any graduate of the junior division who has completed a course in military training substantially the same as that prescribed for the senior division, under the age of 21 years at date of graduation, shall, before becoming eligible for appointment as a reserve officer, be required to attend one camp in each year prior to his arrival at the age of 21 years.

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43. Regulations governing camps for units of the Reserve Officers' Training Corps will be issued as soon as formulated.*

VIII. UNIFORMS, ARMS, AND EQUIPMENTS

[Act of June 3, 1916, Section 47, omitted.]

44. Units of the Reserve Officers' Training Corps of both divisions are permitted to adopt at their own expense a full dress, dress, and fatigue uniform.

45. When a unit of the Reserve Officers' Training Corps has been established at an educational institution, there will be issued to such institution the following uniform:

For each member of the unit:

1 breeches, woolen, olive drab, pair.

1 cap, olive drab.

1 coat, woolen, olive drab.

1 leggings, canvas, pair.

1 cap and collar ornament, set.

1 shoes, russet, pair.

46. When the individual members of the unit have agreed in writing to participate in such camps of instruction as the Secretary of War shall prescribe, there will be issued to such institution the following additional uniform:

For each member of the unit who so agrees:

1 hat, service.

1 cord, hat.

2 breeches, cotton, olive drab, pair.

2 shirts, flannel, olive drab.

47. No article of Government uniform issued to an institution under section 47, national defense act, shall be used except to uniform members of the units of the Reserve Officers' Training Corps at the institution to which said uniforms were issued.

48. The maintenance, care, and accountability of uniforms will be governed by the provisions of paragraphs 50 to 62, inclusive, of these regulations.

* It will not be practicable to hold camps prior to the summer of 1917 for these units.

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49. It is the policy of the War Department to issue to institutions maintaining units of the Reserve Officers' Training Corps the latest model arms and equipment in so far as the supply and the appropriations of Congress permit, and in quantities sufficient to insure the proper instruction of the units organized. Should the available supply of the latest models not be sufficient to arm and equip all units of the Reserve Officers' Training Corps, preference in this respect will be given to institutions at which units of the senior division are organized.

50. The number and kind of arms and equipment to be issued will, in general, conform to those prescribed in orders and equipment manuals for similar organizations of the Regular Army, excepting such articles as are not essential to the proper instruction of the units organized or which, in the opinion of the Secretary of War, can not be advantageously used because of lack of proper facilities at the educational institution in question.

51. Requisitions for Government property for an educational institution authorized to have it will be sent to the commander of the territorial department in which the institution is located. After ascertaining what Government property requested under the law the institution needs, the department commander will forward the requisitions to the War Department with remark and recommendation as to the property he finds should be issued if available. Separate requisitions will be required for the property pertaining to each supply department. After the value of all the property that should be issued to an institution has been decided upon by the War Department, a bond in the value of all Government property to be issued for the care and safekeeping thereof, and for its return when required, will be furnished to the Quartermaster General before any Government property can be obtained by the institution. The Quartermaster General will file the bond in his office and furnish the chief of every other supply department concerned with official information showing amount credited on the bond to cover the property pertaining to his department or corps. Government property to an amount in

RESERVE OFFICERS' TRAINING CORPS

excess of that covered by the bond will not be issued. Educational institutions may execute bonds somewhat in excess of their immediate needs in order that any reasonable expansion may be met by the supply departments without entailing the necessity for the execution of a new bond. Blank forms for bonds and instructions for their preparation will be obtained from the Quartermaster General.

Shipment of Government property authorized by section 47, national defense act, from depots, arsenals, or armories to institutions, and return shipments of such property from institutions to depots, arsenals or armories, will be made on regular form of Government bill of lading at the expense of the United States.

52. All Government property issued must be kept insured for its full value against loss by fire for the benefit of the United States by the authorities of the educational institution and the department commander promptly informed when and where the insurance is placed and date of expiration.

53. Requisitions and returns for Government property must be prepared in accordance with the regulations governing the respective supply departments concerned.

54. No Government property will be issued to any institution unless adequate facilities are provided for its proper storage, care, and safe-keeping.

55. All Government property must be kept in serviceable condition. A proper allowance of cleaning material and spare parts will be issued by the Government for this purpose.

56. When any property is lost, destroyed, stolen, or damaged, or becomes unserviceable from any cause whatsoever, the cause will be investigated by an officer of the United States Army detailed by the department commander. If it appears that the loss, damage, or unserviceability is due to neglect or any lack of reasonable care or precautions on the part of the authorities of the institution or any member of the Reserve Officers' Training Corps, the institution must make good to the United States such loss or damage. When property becomes damaged, the institution will be held

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responsible, except for such deterioration as is due to fair wear and tear incident to the use of the property in that military instruction prescribed or authorized by the Secretary of War.

57. Property lost, destroyed, or damaged due to unavoidable causes and without fault or neglect on the part of the institution or any member of the Reserve Officers' Training Corps, or which is worn out due to fair wear and tear incident to its use in military instruction prescribed or authorized by the Secretary of War, will be repaired or replaced at the expense of the United States.

58. Detailed instructions as to the care, use, preservation, and accountability of Government property are found in the Army Regulations and in other regulations or instructions issued by the War Department.

59. As far as practicable each student should be required to care for his rifle and equipment during the first two years of military training, this instruction being considered an essential part of the course.

60. All textbooks, manuals, and maps must be purchased by the student himself or by the institution, in the same manner as other textbooks are obtained. These books can be bought by the institutions from the Superintendent of Public Documents, from the War Department, and from the Army Service Schools, under the provisions of the act of Congress of July 17, 1914.

61. The War Department will issue such blank forms as may be necessary for the proper instruction and administration of these units.

62. Distinctive insignia, to be worn on the upper part of the left forearm, will be issued to each student who is duly enrolled in the Reserve Officers' Training Corps. The design of said insignia will be in accord with sealed pattern deposited in the office of the Quartermaster General.

63. It is the intention from time to time to issue insignia indicating a rating for excellence obtained during the course of instruction in addition to a badge for proficiency in target practice. Detailed instructions covering the issue of these badges will be issued from time to time.

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IX. ADMINISTRATION

64. At each institution an officer of the Army shall be appointed by the Secretary of War an acting quartermaster. He shall receive, disburse, and account for all Government funds allotted to the institution in connection with the maintenance of the Reserve Officers' Training Corps and shall assist the authorities of the institution in the preparation of all requisitions, reports, and returns required by the War Department.

X. APPOINTMENT OF TEMPORARY SECOND LIEUTENANTS

[Act of June 3, 1916, Sections 51 and 52, omitted.]

65. Upon the receipt of these regulations each institution at which an officer of the Army has been detailed during the current year should communicate with those of its graduate students who in the past (prior to June 3, 1916) have taken a course substantially equivalent to that prescribed for the senior division, informing them of the law above quoted and calling attention to the following regulations.

66. Applications for these appointments, in form hereafter prescribed, should then be made without delay by all such graduates who desire commissions in the Officers' Reserve Corps and appointment as temporary second lieutenant in the Regular Army. These citizens must be between the ages of 21 and 27 years. Applications should be submitted as soon as practicable in order that the applicants may be given the preliminary course in training camp required to qualify them for appointment under the above-quoted sections of the law.

67. Upon approval of their applications these citizens will then be eligible for the prescribed additional training, which will consist of attendance at the third (blue) camp for the purpose of taking a four weeks' course strictly practical in its nature.

68. Approved applications will be referred to the commanding general of the department in which the candidate resides. The department commander will then arrange

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for the attendance of the candidate at the most convenient camp.

69. Upon completion of the course prescribed for the third (blue) camp the applicant should obtain a certificate from his commanding officer setting forth his proficiency. This certificate should be then forwarded, through the department commander, with a renewed application for commission in the Officers' Reserve Corps and appointment as temporary second lieutenant. The application for such commission and appointment will state the institution from which graduated, date of graduation, arm of service for which trained, present age, and other recommendations, as well as name of officer of the Army who was on detail at said institution.

70. This application will then be passed upon at the War Department and, if approved, the applicant will be reported to the President as qualified for commission in the Officers' Reserve Corps and appointment as a temporary second lieutenant.

71. Graduates of the Reserve Officers' Training Corps who desire to undergo the six months' period of training will make timely application for this appointment, giving the data and recommendations set forth in paragraph 70 of these regulations.

72. The object of the six months' training with the Regular Army is to acquaint the reserve officer with service in the Regular Army and to enable the Government to ascertain his qualifications for future promotion by thus providing a probationary period of training under the immediate supervision of officers of and with units of the Regular Army.

XI. MISCELLANEOUS

73. With the approval of the authorities of any institution, physically fit members of the faculty or of the corps of instructors are authorized to take the courses of training prescribed in these regulations for members of the Reserve Officers' Training Corps. However, it must be understood

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that participation in these courses does not entitle them to participate in any Government expenditure therefor, nor does it in itself render them eligible for appointment as reserve officers, but they may qualify by complying with the law and regulations provided for the Officers' Reserve Corps.

74. Provisions of the Act of June 3, 1916, and of these regulations shall not affect obligations to provide military instruction imposed by act of July 2, 1862, upon State institutions.

[2442282 A. G. O.]

BY ORDER OF THE SECRETARY OF WAR.

H. L. SCOTT,

Major General, Chief of Staff.

OFFICIAL:

H. P. McCAIN,

The Adjutant General.

THE COLLEGES IN WAR TIME AND AFTER

3. COURSES OF TRAINING²

I. INFANTRY UNITS OF THE SENIOR DIVISION

1. Military art.

Three hours a week (counting 14 units).

(a) Practical. Weight 10.

Physical drill (Manual of Physical Training—Koehler); Infantry drill (U. S. Infantry Drill Regulations), to include the School of the Soldier, Squad and Company, close and extended order. Preliminary instruction sighting position and aiming drills, gallery practice, nomenclature and care of rifle and equipment.

(b) Theoretical. Weight 4.

Theory of target practice, individual and collective (use of landscape targets made up by U. S. Military Disciplinary Barracks, Fort Leavenworth, Kans.); military organization (Tables of Organization); map reading; service of security; personal hygiene.

2. Military art.

Three hours a week (counting 14 units).

(a) Practical. Weight 10.

Physical drill (Manual of Physical Training—Koehler); Infantry drill (U. S. Infantry Drill Regulations), to include School of Battalion, special attention devoted to fire direction and control; ceremonies; manuals (Part V, Infantry Drill Regulations); bayonet combat; intrenchments (584-595, Infantry Drill Regulations); first-aid instruction; range and gallery practice.

(b) Theoretical. Weight 4.

Lectures, general military policy as shown by military history of United States and military obligations of citizenship; service of information; combat (to be illustrated by small tactical exercises); United States Infantry Drill Regulations,

² General Orders, No. 49, Appendix II.

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to include School of Company; camp sanitation for small commands.

3. Military art.

Three hours a week (counting 14 units).

(a) Practical. Weight 10.

The same as course 2 (a). Combat firing, if practicable, but collective firing should be attempted in indoor ranges by devices now in vogue at United States Disciplinary Barracks.

(b) Theoretical. Weight 4.

United States Infantry Drill Regulations, to include School of Battalion and Combat (350-622); Small-Arms Firing Regulations; lectures as in (b) course 2; map reading; camp sanitation and camping expedients.

4. Military art.

Three hours a week (counting 14 units).

(a) Practical. Weight 10.

The same as course 2 (a); signaling; semaphore and flag; first-aid. Work with sand table by constructing to scale intrenchments, field works, obstacles, bridges, etc. Comparison of ground forms (constructed to scale) with terrain as represented on map; range practice.

(b) Theoretical. Weight 4.

Lectures, military history (recent); service of information and security (illustrated by small tactical problems in patrolling, advance guards, rear guards, flank guards, trench and mine warfare, orders, messages, and camping expedients); marches and camps (Field Service Regulations and Infantry Drill Regulations).

5. Military art.

Five hours a week (counting 24 units).

(a) Practical. Weight 13.

Duties consistent with rank as cadet officers or non-commissioned officers in connection with the practical work and exercises laid down for the unit or units. Military sketching.

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- (b) Theoretical. Weight 11.
Minor tactics; field orders (studies in minor tactics, United States School of the Line); map maneuvers. Weight 8.
Company administration, general principles (papers and returns). Weight 1.
Military history. Weight 2.
- 6. Military art.
Five hours a week (counting 24 units).
 - (a) Practical. Weight 13.
Same as (a) course 5. Military sketching.
 - (b) Theoretical. Weight 11.
Minor tactics (continued); map maneuvers. Weight 8.
Elements of international law. Weight 2.
Property accountability; method of obtaining supplies and equipment (Army Regulations). Weight 1.
- 7. Military art.
Five hours a week (counting 24 units).
 - (a) Practical. Weight 13.
Duties consistent with rank as cadet officers or noncommissioned officers in connection with the practical work and exercises scheduled for the unit or units. Military sketching.
 - (b) Theoretical. Weight 11.
Tactical problems, small forces, all arms combined; map maneuvers; court-martial proceedings (Manual for Courts-martial).
International relations of America from discovery to present day; gradual growth of principles of international law embodied in American diplomacy, legislation, and treaties.
Lectures: Psychology of war and kindred subjects.
General principles of strategy only, planned to show the intimate relationship between the statesman and the soldier (not to exceed 5 lectures).

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8. Military art.

Five hours a week (counting 24 units).

(a) Practical. Weight 13.

Same as course 7 (a).

(b) Theoretical. Weight 11.

Tactical problems (continued); map maneuvers.

Rifle in war.

Lectures on military history and policy.

It is presumed that each member of the Reserve Officers' Training Corps during his academic course has taken one course or equivalent credit in either French, or German, or Spanish.

Special courses can no doubt be arranged at each institution so that specialists will be developed for duties other than those prescribed for reserve officers of the mobile arms.

It must be clearly kept in mind that these courses are arranged so that the standard required will be that for a platoon leader in an Infantry company or of the equivalent unit in the other arms.

Such units can not be considered apart from the larger ones, which are made up of a combination of smaller ones. Hence intelligent teamwork depends on the leaders of smaller tactical units understanding the working of the larger units of their own arm or in combination with the other arms.

The student upon graduation should know what is required of a platoon from the point of view of the company commander, and understand clearly the interior economy of a company. He must know what is demanded of the soldier as an individual and also in combination as part of a larger organization. The last knowledge should include some idea of the tactical handling of a battalion, of which his company is a smaller unit.

The schedule of training prescribes graded courses covering a period of four years, and instruction will be taken up as follows:

BASIC COURSE

Freshman year, courses 1 and 2 (28 units).

Sophomore year, courses 3 and 4 (28 units).

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ADVANCED COURSE

Junior year, courses 5 and 6 (48 units).

Senior year, courses 7 and 8 (48 units).

II. CAVALRY UNITS OF THE SENIOR DIVISION

1. Military art.

Three hours a week (counting 14 units).

(a) Practical. Weight 10.

Physical drill (Manual of Physical Training—Koehler).

Cavalry drill (U. S. Cavalry Drill Regulations), to include the School of the Trooper and Troop, close and extended order; elementary training in equitation and horsemanship.

Preliminary instruction sighting position and aiming drills gallery practice, nomenclature and care of rifle and equipment.

(b) Theoretical. Weight 4.

Theory of target practice, individual and collective (use of landscape targets made up by U. S. Military Disciplinary Barracks, Fort Leavenworth, Kans.); military organization (Tables of Organization); map reading; service of security; personal hygiene.

2. Military art.

Three hours a week (counting 14 units).

(a) Practical. Weight 10.

Physical drill (Manual of Physical Training—Koehler).

Cavalry drill (U. S. Cavalry Drill Regulations), to include School of Squadron, special attention devoted to fire control; ceremonies; intrenchments; first-aid instructions; range and gallery practice.

Elementary training in equitation and horsemanship, second period.

(b) Theoretical. Weight 4.

Lectures general military policy, etc.

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Cavalry Drill Regulations, to include School of Troop.

Marches, camping, service of information.

3. Military art.

Three hours a week (counting 14 units).

(a) Practical. Weight 10.

Review of Course 2 (a).

Combat Firing.

Elementary training in equitation and horsemanship, third period.

(b) Theoretical. Weight 4.

United States Cavalry Drill Regulations, to include School of Squadron; service of security; combat.

Lectures, general military policy as shown by military history of United States and military obligations of citizenship.

Map reading.

Camping expedients.

4. Military art.

Three hours a week (counting 14 units).

(a) Practical. Weight 10.

Review of work prescribed in Course 2 (a).

(b) Theoretical. Weight 4.

Lectures, military history (recent); service of information and security (illustrated by small tactical problems in patrolling, advance guards, rear guards, flank guards, trench and mine warfare, orders, messages and camping expedients); marches and camps (Field Service Regulations and Cavalry Drill Regulations).

Care of saddlery and stable management.

5. Military art.

Five hours a week (counting 24 units).

(a) Practical. Weight 13.

Duties consistent with rank as cadet officers or noncommissioned officers in connection with the practical work and exercises laid down for the unit or units.

Military sketching.

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(b) Theoretical. Weight 11.

Minor tactics; field orders (Studies in minor tactics, United States School of the Line); map maneuvers.

Troop administration, general principles (papers and returns).

Military history.

Stable management and care of Cavalry horse.

6. Military art.

Five hours a week (counting 24 units).

(a) Practical. Weight 13.

Same as course 5 (a).

(b) Theoretical. Weight 11.

Minor tactics (continued); map maneuvers.
Weight 8.

Elements of international law. Weight 2.

Property accountability; method of obtaining supplies and equipment (Army Regulations).
Weight 1.

7. Military art.

Five hours a week (counting 24 units).

(a) Practical. Weight 13.

Duties consistent with rank as cadet officers or noncommissioned officers in connection with the practical work and exercise scheduled for the unit or units.

Military sketching.

(b) Theoretical. Weight 11.

Tactical problems, small forces, all arms combined; map maneuvers; court-martial proceedings (Manual for Courts-Martial).

International relations of America from discovery to present day; gradual growth of principles of international law embodied in American diplomacy, legislation and treaties.

Lectures: Psychology of war and kindred subjects.
General principles of strategy only, planned to show the intimate relationship between the

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statesman and the soldier (not to exceed 5 lectures).

8. Military art

Five hours a week (counting 24 units).

(a) Practical. Weight 13.

Same as course 7 (a).

(b) Theoretical. Weight 11.

Tactical problems (continued); map maneuvers.

Rifle in war.

Lectures on military history and policy.

The schedule of training prescribes graded courses covering a period of four years, and instruction will be taken up as follows:

BASIC COURSE

Freshman year, courses 1 and 2 (28 units).

Sophomore year, courses 3 and 4 (28 units).

ADVANCED COURSE

Junior year, courses 5 and 6 (48 units).

Senior year, courses 7 and 8 (48 units).

III. FIELD ARTILLERY UNITS OF THE SENIOR DIVISION

1. Military art.

Three hours a week (counting 14 units).

(a) Practical. Weight 10.

Physical drill (Manual of Physical Training—Koehler) (3 hours).

Provisional drill and service regulations for Field Artillery.

Dismounted instruction:

General rules.

The soldier dismounted.

The squad.

Manual of the Pistol.

The battery dismounted.

Preliminary exercises of the gun squad; gunner instruction.

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Mounted instruction:

The soldier mounted, to include elementary training in equitation and horsemanship, first period; the driver, to include nomenclature of harness, disposition of harness, harnessing and unharnessing and cleaning and care of harness and horse equipment.

(b) Theoretical. Weight 4.

Theory of probability, rules of fire, simulated fire, calculation of firing data.

Military organization, map reading, personal hygiene (9 hours).

2. Military art.

Three hours a week (counting 14 units).

(a) Practical. Weight 10 (33 hours).

Physical drill (Manual of Physical Training — Koehler) (3 hours).

First-aid instruction.

Provisional drill and service regulations for Field Artillery. (Dismounted instruction) (15 hours).

Firing instruction.

Use of instruments; calculation of firing data.

Mounted instruction (15 hours).

Elementary training in equitation and horsemanship, second period.

School of the Driver.

(b) Theoretical. Weight 4 (9 hours).

Lectures: general military policy as shown by military history of the United States and military obligation of citizenship.

Provisional drill and service regulations for Field Artillery:

Artillery in the field.

Use of instruments; calculation of firing data.

Theory of probability; practical ballistics.

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3. Military Art.

Three hours a week (counting 14 units).

(a) Practical. Weight 10.

Provisional drill and service regulations for Field Artillery:

Dismounted instruction —

Firing instruction.

Service firing (subcaliber practice only).

Use of instruments; calculation of firing data (16 hours).

Mounted instruction —

Elementary training in equitation and horsemanship, third period.

The battery mounted (17 hours).

(b) Theoretical. Weight 4.

Use of instruments; calculation of firing data.

Theory of probability; practical ballistics.

4. Military art.

Three hours a week (counting 14 units).

(a) Practical. Weight 10.

Review of work prescribed for first, second, and third courses.

Signaling and use of service buzzer.

(b) Theoretical. Weight 4.

Review of work prescribed for first, second, and third courses.

5. Military art.

Five hours a week (counting 24 units).

(a) Practical. Weight 13 (60 hours).

Duties consistent with rank as cadet officers and noncommissioned officers in instructing the cadets taking the first to fourth courses, inclusive (30 hours).

School of the Battery, mounted.

Duties of the special details.

Mounted instruction, including elementary training in equitation and horsemanship, first, second, and third periods; School of the Driver and care and conditioning of horses.

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- (b) Theoretical. Weight 11 (10 hours).
 - Minor tactics, field orders, and map maneuvers. Weight 8.
 - Battery administration (papers and returns). Weight 1.
 - Military history. Weight 2.
- 6. Military art.
 - Five hours a week (counting 24 units).
 - (a) Practical. Weight 13 (60 hours).
 - Duties consistent with rank as cadet officers and noncommissioned officers in instructing the cadets taking the first to fourth courses, inclusive (30 hours).
 - School of the Battery, mounted.
 - Duties of the special details.
 - Subcaliber practice.
 - (b) Theoretical. Weight 11.
 - Minor tactics (continued); map maneuvers. Weight 8.
 - Elements of International Law. Weight 2.
 - Property accountability; method of obtaining same (Army Regulations). Weight 1.
- 7. Military art.
 - Five hours a week (counting 24 units).
 - (a) Practical. Weight 20.
 - Duties consistent with rank as cadet officers and noncommissioned officers in instructing the cadets taking the first to fourth courses, inclusive (30 hours).
 - School of the Battery, mounted.
 - Duties of the special details.
 - Equitation, care and conditioning of horses, stable management.
 - (b) Theoretical. Weight 4.
 - Military history. International relations of America from discovery to present day.
 - Court-martial proceedings.
 - Lecture: Psychology of War.
 - General principles of strategy.

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8. Military art.

Five hours a week (counting 24 units).

(a) Practical. Weight 20.

Same as course 7.

Target practice.

(b) Theoretical. Weight 4.

Tactical problems, small forces, all arms combined; map maneuvers; field orders.

The schedule of training prescribes graded courses covering a period of four years, and instruction will be taken up as follows:

BASIC COURSE

Freshman year, courses 1 and 2 (28 units).

Sophomore year, courses 3 and 4 (28 units).

ADVANCED COURSE

Junior year, courses 5 and 6 (48 units).

Senior year, courses 7 and 8 (48 units).

IV. ENGINEER UNITS OF THE SENIOR DIVISION

1. Military art.

Three hours a week (counting 14 units).

(a) Practical. Weight 10.

Physical drill (Manual of Physical Training — Koehler).

Infantry drill (U. S. Infantry Drill Regulations), to include the School of the Soldier, Squad, and Company, close and extended order.

Practical military engineering — laying out and constructing trenches, obstacles, and revetments (Part V, Engineer Field Manual, and 584-595, Infantry Drill Regulations). Use sand table when outdoor work is impracticable.

(b) Theoretical. Weight 4.

Military organization (Tables of Organization).

Service of Security (Field Service Regulations).

Personal hygiene (lectures).

Part V, Engineer Field Manual (including latest addendum); omit mining and demolitions.

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2. Military art.

Three hours a week (counting 14 units).

(a) Practical. Weight 10.

Physical drill (Manual of Physical Training — Koehler).

Infantry drill (U. S. Infantry Drill Regulations), to include School of Battalion and Ceremonies.

First-aid instruction.

Range and gallery practice.

Practical military engineering — military mining and demolitions (Part V, Engineer Field Manual).

(b) Theoretical. Weight 4.

Lectures on general military policy as shown by military history of United States and military obligations of citizenship.

Service of Information (Field Service Regulations).

United States Infantry Drill Regulations, to include School of the Company.

Camp sanitation for small commands (lecture).

Part V, Engineer Field Manual — military mining and demolitions.

3. Military art.

Three hours a week (counting 14 units).

(a) Practical. Weight 10.

Same as course 2 (a) except practical military engineering, which will consist of knots and lashings and improvised military bridges.

(b) Theoretical. Weight 4.

United States Infantry Drill Regulations — School of the Battalion.

Small-Arms Firing Regulations, paragraphs 1-134.

Part II, Engineer Field Manual — Bridges.

4. Military art.

Three hours a week (counting 14 units).

(a) Practical. Weight 10.

Same as course 2 (a) except practical military engineering, which will consist of building mili-

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tary bridges, including floating bridges and instruction in rowing when practicable.

(b) Theoretical. Weight 4.

Lectures on recent military history.

Field Service Regulations — patrolling, advance and rear guard and outpost, orders and messages, marches, and camps and camp expedients.

Ponton Manual.

5. Military art.

Five hours a week (counting 24 units).

(a) Practical. Weight 13.

Duties consistent with rank as cadet officers, non-commissioned officers, and instructors in connection with the practical work and exercises of the students taking courses 1 (a) and 3 (a).

Military reconnaissance and sketching.

(b) Theoretical. Weight 11.

Review of Parts II and V, Engineer Field Manual. Notes on Field Fortification (Army Field Engineer School).

Part I, Engineer Field Manual — Reconnaissance. Weight 8.

Company administration — general principles (papers and returns). Weight 1.

Two lectures on the History of Military Engineering (students to submit notes on lecture). Weight 2.

6. Military art.

Five hours a week (counting 24 units).

(a) Practical. Weight 13.

Duties consistent with rank as cadet officers, non-commissioned officers, and instructors in connection with the practical work and exercises of the students taking courses 2 (a) and 4 (a).

Military reconnaissance and sketching.

(b) Theoretical. Weight 11.

Review of military mining and demolitions in Part V, Engineer Field Manual.

Review of Ponton Manual.

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Field Service Regulations, paragraphs 354-410, 242-246, and Appendix 2. Weight 8.

Elements of international law. Weight 2.

Property accountability and methods of obtaining property (Army Regulations). Weight 1.

7. Military art.

Five hours a week (counting 24 units).

(a) Practical. Weight 13.

Duties consistent with rank as cadet officers, non-commissioned officers, and instructors in connection with the practical work and exercises of the students taking courses 1 (a) and 3 (a).

Military reconnaissance and sketching.

(b) Theoretical. Weight 11.

Field Service Regulations — Article V, Combat.

The use of engineer troops — Official Bulletin No. 4.

Map reading and map maneuvers.

Manual of Courts-Martial.

8. Military art.

Five hours a week (counting 24 units).

(a) Practical. Weight 13.

Same as course 7 (a).

(b) Theoretical. Weight 11.

Organization and equipment of engineer troops.

Night illumination of battle field.

Studies in minor tactics (School of the Line, 1915).

Lectures on military history and policy, based on Upton.

The schedule of training prescribes graded courses covering a period of four years, and instruction will be taken up as follows:

BASIC COURSE

Freshman year, courses 1 and 2 (28 units).

Sophomore year, courses 3 and 4 (28 units).

ADVANCED COURSE

Junior year, courses 5 and 6 (48 units).

Senior year, courses 7 and 8 (48 units).

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V. JUNIOR DIVISION, TOTAL WEIGHT 22 UNITS

1. Infantry drill regulations (practical and theoretical), to include definitions, general principles, combat and ceremonies.

School of the Soldier....	} In extended order, combat, and intrenchments.
School of the Squad.....	
School of the Company..	
School of the Battalion..	

2. Manual of Interior Guard Duty (practical and theoretical). Duties as sentries; general principles.

3. Physical drills: Calisthenics, bayonet exercises, and combat fencing.

4. Military hygiene: To include principles of personal hygiene, camp sanitation, first aid to the injured, etc.

5. Military policy: A few lectures when in last year at institution on the military policy of the United States and the military obligation of citizenship.

6. Small-arms firing regulations: Preliminary instruction in rifle firing; sighting position and pointing and aiming drill; indoor and range practice; due attention devoted to fire direction and control and, if possible, some collective fire.

7. Administration and Organization: A few lectures on company administration and Tables of Organization.

8. Map reading: Instruction in reading a contoured map (in connection with 9).

9. Field service regulations: Patrolling; advance and rear guards; outposts, by means of the sand table and small map maneuvers; messages and orderly work.

10. Marches and camps: Simple camping expedients.

11. Signaling: Semaphore and flag.

Owing to the wide range of the ages of students in this class of institutions, the majority being too young to follow intelligently a graded course such as is prescribed for the senior division, only the subjects in which proficiency must be attained are laid down. It is impossible to set any fixed number of years for the accomplishment of this programme, and hence each institution should arrange its schedule of

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instruction so that the cadet upon graduation will be proficient in all of the above subjects.

Should the cadet enter a collegiate institution in which is organized a senior division of the Reserve Officers' Training Corps he will not have to repeat the theoretical work in any of the above subjects, but he will not be excused from any practical work. He will not, however, repeat any work in the school of the soldier or squad if the professor of military science and tactics judges him to be proficient in such schools.

The courses prescribed can be added to in case institutions so desire, but the minimum requirements quoted above must be completed upon graduation.

APPENDIX III

THE STUDENTS' ARMY TRAINING CORPS

1. SPECIAL REGULATIONS¹

The following regulations and instructions governing the establishment, administration and maintenance of Students' Army Training Corps units at educational institutions, and the issue of Government property thereto in accordance with existing laws are published for the information and guidance of all concerned.

I. GENERAL PRINCIPLES

1. The Students' Army Training Corps is raised under authority of the Act of Congress, approved May 18, 1917, commonly known as the Selective Service Act, authorizing the President to increase temporarily the military establishment of the United States, as amended by the Act of August 31, 1918, and under General Order No. 79 of the War Department, dated August 24, 1918, as follows:

"Under the authority conferred by sections 1, 2, 8 and 9 of the Act of Congress 'authorizing the President to increase temporarily the military establishment of the United States,' approved May 18, 1917, the President directs that for the period of the existing emergency there shall be raised and maintained by *VOLUNTARY INDUCTION AND DRAFT* a Students' Army Training Corps. Units of this Corps will be authorized by the Secretary of War at *EDUCATIONAL INSTITUTIONS* that meet the requirements laid down in Special Regulations."

2. These regulations will be known as Students' Army Training Corps Regulations. (S. A. T. C. R.)

¹ Circular of the War Department Committee on Education and Special Training.

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II. OBJECT

3. The object of establishing units of the Students' Army Training Corps is to utilize effectively the plant, equipment and organization of the colleges for selecting and training officer-candidates and technical experts for service in the existing emergency.

III. CONSTITUTION

4. The Students' Army Training Corps consists of units established by the President in qualified educational institutions which fulfill the requirements laid down in these regulations.

5. The members of the Students' Army Training Corps at an educational institution will form a single unit for purposes of military organization, but for purposes of instruction such unit may consist of one or more sections according to the type of educational training given.

6. The sections of a unit of the Students' Army Training Corps and the educational requirements for the establishment of the same are as follows:

- (1) The establishment of a Collegiate Section (to be known as Section A), may be authorized at any civil educational institution which
 - (a) Requires for admission to its regular curricula graduation from a standard, four-year, secondary school or an equivalent, and
 - (b) Ordinarily provides a general or professional curriculum covering at least two years of not less than 32 weeks each, and
 - (c) Has a student attendance sufficient to maintain a Collegiate Section of a Students' Army Training Corps unit with a strength of at least one hundred men.

So far as practicable an effort will be made to establish Collegiate Sections at institutions which have a smaller student attendance than that prescribed in the preceding paragraph. Applications from such institutions will be considered and granted so far as officers

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and equipment permit, and so far as arrangements for the establishment of joint units may be found practicable.

Provided the conditions of paragraph 6 are met, educational institutions qualified to maintain Collegiate Sections of Students' Army Training Corps will include:

1. Colleges and schools of:
 - a. Arts and sciences.
 - b. Technology.
 - c. Engineering.
 - d. Mines.
 - e. Agriculture and Forestry.
 - f. Business Administration, Industry and Commerce.
 - g. Pharmacy.
 - h. Veterinary medicine.
 - i. Education.
 - j. Law.
 - k. Medicine.
 - l. Dentistry.
 2. Graduate Schools.
 3. Normal Schools.*
 4. Junior Colleges.
 5. Technical Institutes.
- (2) The establishment of a Vocational Section (to be known as Section B) may be authorized at any institution having an adequate shop or laboratory equipment and a staff of instructors capable of giving approved vocational training of military value.
7. Students enrolled in preparatory departments of higher civil educational institutions may not be counted by college authorities in reckoning the one hundred able-bodied male students required for the establishment of a unit containing a Collegiate Section only.
8. A unit will not be established unless the conditions laid

* Normal schools which give at least two years of college work, following four years of high school preparation or its equivalent, may be included.

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down in paragraph 6 of these regulations are fulfilled and unless the institution is, in the opinion of the Secretary of War, capable of efficiently carrying out the work prescribed.

9. The Secretary of War may discontinue any unit should he consider that the proper standards are not being maintained and that the unit is not fulfilling the objects for which the corps is established.

IV. CONDITIONS AND ROUTINE OF ADMISSION TO A STUDENTS' ARMY TRAINING CORPS UNIT

10. Eligibility to the Students' Army Training Corps is limited to registrants under the Selective Service Regulations who are physically fit to perform full or limited military duty and who have had at least grammar school education, or its equivalent.

(a) A Collegiate Section (Section A) of a Students' Army Training Corps unit will include those who have graduated from a standard, four-year, secondary school, or have equivalent educational qualification.

Subject to the approval of the Committee on Education and Special Training an institution may prescribe any reasonable addition to the requirement for admission set forth in sub-section (a) above. The requirement of graduation from a standard four-year secondary school or an equivalent, as a condition for admission, will be relaxed only in cases where in the judgment of the Committee on Education and Special Training, the enforcement of this requirement would admit numbers insufficient to meet the needs of the service.

(b) A Vocational Section (Section B) of a Students' Army Training Corps will include those who have had grammar school education or its equivalent.

11. Upon admission to the Students' Army Training Corps a registrant becomes a soldier in the Army of the United States. As such he is subject to military law and to military discipline at all times.

12. The Collegiate Sections of Students' Army Training Corps units will be recruited in the first instance by the

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voluntary induction of registrants under the Selective Service Regulations.

13. Members of the Students' Army Training Corps will be placed upon active duty status immediately upon their induction. The Committee on Education and Special Training will enter into contracts with educational institutions for the quartering, subsistence and instruction of members of the Students' Army Training Corps units established at such institutions.

14. From time to time, in accordance with the needs of the service and the qualifications of the individual, it will be the policy of the Government to assign members of the Students' Army Training Corps to:

- (a) An officers' training camp, or
- (b) A non-commissioned officers' training school, or
- (c) A depot brigade, or
- (d) To continue in certain cases (in either a collegiate or a vocational section) such technical or special training as the needs of the service may require.

Assignments will ordinarily be made to officers' training camps or to non-commissioned officers' training schools in the case of men who are qualified to become officers or non-commissioned officers; to continue at an educational institution in the case of qualified men who are engaged in such studies as medicine, engineering, chemistry, etc., or who give promise of qualifying for admission to officers' training camps or non-commissioned officers' training schools; and to a depot brigade in the case of those who do not give sufficient promise of qualifying for commissions after further training.

15. The preference of registrants who are voluntarily inducted into the Students' Army Training Corps as to the branch of the service that they ultimately enter (e. g., engineers, artillery, infantry, chemical warfare service, etc.) will be given consideration except where military needs require a different course.

16. Students in educational institutions at which a unit of the Students' Army Training Corps has been established,

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may, if not eligible for membership in the corps, be given such military instruction as may be found practicable.

V. ADMINISTRATION

17. The Students' Army Training Corps is administered by the War Department through the Committee on Education and Special Training of the Training and Instruction Branch, War Plans Division, General Staff, assisted by an advisory educational board, together with educational directors, district educational directors and special advisors.

18. The War Department will provide an officer of the Army, active or retired, to serve as Commanding Officer in each institution at which a unit of the Students' Army Training Corps is established, and, so far as practicable, additional officers will be provided in proportion to the strength of the unit.

19. The Commanding Officer and the other officers assigned to duty with units of the Students' Army Training Corps will, in their relation to the institution, observe the general usages therein established affecting the duties and obligations of members of the Faculty and other academic instructors. Officers will not, without permission of the Secretary of War, undertake any instructional or administrative duties in the institution other than those connected with the work of the Students' Army Training Corps.

20. The Commanding Officer at an institution will instruct officers and non-commissioned officers in their relation to the institution and its officials.

21. It is the duty of the Commanding Officer, and of other officers assigned to duty with units of the Students' Army Training Corps to enforce military discipline. Nothing in these regulations is intended to confer on the Commanding Officer authority over purely educational matters.

22. The method of voluntary induction into the Students' Army Training Corps is prescribed in the Selective Service Regulations and instructions issuing from the office of the Provost Marshal General.

23. The Students' Army Training Corps is a corps of

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the U. S. Army. Members of it will be trained for the line and for the different staff corps. Their educational programs will be shaped to prepare various groups for particular duties in accordance with the needs of the service. The Students' Army Training Corps will be organized as infantry under the Tables of Organization and the fundamental infantry training common to all branches of the service will be given.

VI. SCOPE OF TRAINING

24. For Section A the instruction will be partly military and partly in allied subjects that have value as a means of training officers and experts to meet the needs of the service.

The average number of hours to be devoted each week to those subjects will be as follows:

- (1) Military subjects, including practical instruction (drill, etc.), theoretical military instruction, and physical training.—Eleven hours.
- (2) Allied subjects, including lectures, recitations, laboratory instruction and the necessary preparation therefor—forty-two hours. (Each hour of lecture or recitation will ordinarily require two hours of supervised study.)

The hours above set forth have reference to the normal course. In the case of students who have pursued for at least one year at an approved institution such studies as form part of the program of preparation for the Chemical Warfare Service, the Medical Corps, the Engineer Corps, the Ordnance Corps or other technical branches of the service, the Committee on Education and Special Training may authorize a reduction in the hours of military instruction (including practical military instruction, theoretical military instruction and physical training) to not less than six hours per week, provided that the reduction is made good by the substitution of a corresponding number of additional hours of instruction in approved technical subjects.

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Provision will be made for approving general programs as well as technical and special programs, in medicine, engineering, chemistry and other technical courses.

25. The Committee on Education and Special Training will furnish from time to time suggestions regarding the treatment of allied subjects that are chosen as parts of the curriculum. District Educational Directors (Section A) are authorized to approve courses which they deem to be suitable, subject to the ratification of the Educational Director (Section A).

26. The allied subjects will ordinarily be selected from the following list: English, French, German, Mathematics, Physics, Chemistry, Biology, Psychology, Geology, Geography, Topography and Map Making, Meteorology, Astronomy, Hygiene, Sanitation, Descriptive Geometry, Mechanical and Freehand Drawing, Surveying, Economics, Accounting, History, International Law, Military Law, and Government.

Permission may be granted for the recognition, as an allied subject, of not more than one subject outside the above list provided that it occupies not more than three hours per week in lectures and recitations with corresponding time for study.

In the case of technical and professional schools provision will be made for approving general programs of study containing subjects other than those included in the above list of allied subjects.

The program of study in allied subjects must include a course on the underlying issues of the war. This may be planned as a special War Issues course with a minimum for Section A of three classroom hours per week, with corresponding time for study, covering three terms, or the requirement may be met by a course or courses in history, government, economics, philosophy or modern literature where these courses are so planned as, in the opinion of the Educational Director (Section A), to accomplish substantially the same purpose.

The District Educational Director (Section A) may empower colleges to excuse from this course:

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- (1) Members of the S. A. T. C. who have had a similar course even though not identical in every detail, or
- (2) Members of the S. A. T. C. who have already had at least two years of work of collegiate grade in an approved institution and who should be required to concentrate the whole of their time on advanced studies.

While the study of any of the subjects set forth above should be useful as a part of the training of future officers, the content of the course and the methods of instruction will in each case determine the acceptance of the subject as well as the amount of credit to be assigned to it as an allied military subject. This credit may vary according to the branch of the service for which the student is preparing, e. g., Field Artillery, Medical Corps, or Engineering Corps.

27. For Section B the average number of hours to be devoted each week to military and vocational training will be as follows:

- (1) Military subjects, including practical instruction (drill, etc.), and physical training — fifteen and one-half hours.
- (2) Vocational subjects — thirty-three hours.
- (3) War Issues Course (see fourth paragraph, Section 26 above),— one hour.

VII. MILITARY INSPECTION

28. A body of Military Inspectors will cover units of the Students' Army Training Corps and report directly to the Committee on Education and Special Training.

VIII. UNIFORMS AND EQUIPMENT

29. (a) The uniform of a member of the Students' Army Training Corps and his allowance of clothing will be that of a private soldier and will be furnished complete as far as practicable.

(b) The number and kinds of arms and equipment to be issued will, so far as practicable, conform to those prescribed for the Army.

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30. No article of Government uniform or equipment, issued under the provisions of the foregoing sections, shall be used except to uniform members of the unit of the Students' Army Training Corps at the institution to which said uniform and equipment were issued.

31. All Government property will be issued and invoiced to the Supply Officer who will be accountable to the Government for same. Requisitions and returns for Government property must be prepared in accordance with the regulations governing the respective supply departments concerned.

32. Requisitions for Government property will be sent by the Commanding Officer to the Committee on Education and Special Training, who, after approving, will forward them to the proper source of supply.

33. Authorized shipment of Government property from depots, arsenals, or armories to institutions, and authorized return shipments of such property from institutions to depots, arsenals or armories, will be made on regular form of Government Bill of Lading, at the expense of the United States.

34. Adequate facilities must be provided by the institution for the proper storage, care and safekeeping of Government property issued to it. All Government property must be kept in serviceable condition. A proper allowance of cleaning material and spare parts will be issued so far as practicable by the Government for this purpose. Detailed instruction as to the care, use, preservation and accountability of Government property are found in the Army Regulations, and in other regulations or instructions issued by the War Department, and strict adherence to same is enjoined upon all concerned.

35. Action concerning the loss, damage or unserviceability of Government property will be in accordance with Army Regulations.

36. The sale or pledge of any article of uniform, arms or equipment by an enlisted man is an offence punishable by Courtmartial.

STUDENTS' ARMY TRAINING CORPS

IX. INSIGNIA

37. Members of the Students' Army Training Corps will wear, with the service hat, an olive drab cord. They will wear as collar insignia a bronze disk bearing the letters U. S.

Acting non-commissioned officers of the Students' Army Training Corps will wear the chevrons prescribed for non-commissioned officers of the Army.

X. MISCELLANEOUS

38. Provisions of these regulations do not affect obligations to provide military instruction imposed by the Act of July 2, 1862, upon land-grant institutions.

THE COLLEGES IN WAR TIME AND AFTER

2. CURRICULA ²

The following instructions and suggestions are transmitted to educational institutions maintaining Collegiate Sections of units of the Students' Army Training Corps for their guidance and consideration:

1. *Introductory.* The reorganization of curricula to meet the requirements of war training is obviously a problem which requires a period of constructive experimentation at educational institutions, in close coöperation with the War Department. It is not the War Department's desire to prescribe for each and all of the several hundred approved educational institutions a rigid and fixed curriculum, drawn without reference to the varying facilities and resources of these institutions.

On the other hand a certain amount of prescription is imperative for the reason that members of the Students' Army Training Corps units at all educational institutions must be prepared to meet specific and uniform army tests and requirements.

The suggestions contained in this circular are therefore to be regarded as tentative only, and subject to change as need may dictate. A general conformance to the tenor of the suggestions is advised, but this policy should not be permitted to deaden the initiative of the individual institution or its teachers.

2. *Curriculum.* The curriculum of each institution should be worked out by its Faculty under the conditions stated below.

3. *Terms.* All curricula are to be based on quarterly courses with terms of 12 weeks each, including examination periods. It is desirable that each term be a unit in itself,

² Circular of the War Department Committee on Education and Special Training.

STUDENTS' ARMY TRAINING CORPS

as students of appropriate age may be withdrawn at the end of any term.

4. *Teaching Staff and Methods of Instruction.* The large number of incoming students and the shortness of their stay in college make it of the utmost importance to use all available teaching power efficiently and economically. In most of the essential and allied subjects it will be necessary to form a large number of small sections with the co-operation of teachers whose subjects are temporarily omitted or depleted. It may also be necessary to omit subjects in which the attendance falls below a certain limit. With due regard to the provisions of paragraph 5 below, care should be taken that the instruction is so planned as to distribute the load which must come upon individual departments and teachers, thus avoiding a "peak load" at any point.

5. *Programs of Students According to Age Groups.* As students who have reached the age of 20 (on September 12, 1918), whether previously in college or not, may have but a single term of twelve weeks in college, they should devote practically their entire time to the essential subjects listed in accordance with special Programs A, B, C, D, E below.

As students who have reached the age of 19 (on September 12, 1918), whether previously in college or not, may have but two terms of twelve weeks in college, they should complete the essential subjects in two terms.

For all other students, whether previously in college or not, curricula should be prepared so that the essential subjects may be distributed over three terms. The remaining time will be available for such additions from the list of Allied Subjects as may be selected by their respective educational institutions.

So far as the necessary emphasis on age brings students of different academic maturity into the same subjects, some variation of treatment may be necessary and it is suggested that this be provided for in the arrangement of the sections mentioned in paragraph 4 above.

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6. *Allied Subjects.* The allied subjects which may be taught by educational institutions and from which election may be made by members of the Students' Army Training Corps are as follows: English, French, German, Italian, Mathematics, Physics, Chemistry, Biology, Psychology, Geology, Geography, Topography and Map Making, Meteorology, Astronomy, Hygiene, Sanitation, Descriptive Geometry, Mechanical and Freehand Drawing, Surveying, Economics, Accounting, History, International Law, Military Law, and Government.

Permission may be granted for the recognition, as an allied subject, of not more than one subject outside the above list provided that it occupies not more than three hours per week in lectures and recitations with corresponding time for study.

Not all of these allied subjects are required or expected to be taught at every educational institution. Each institution, in making a selection of allied subjects to be taught, should choose only those which it is fully equipped to offer.

Some allied subjects, it should be noted, are required subjects in certain programs of study indicated below.

7. *Essential Subjects.* The following subjects (in addition to the prescribed military instruction) should be included in the program of every member of the Students' Army Training Corps who is preparing to become an infantry or artillery officer and who has not already had equivalent training: War Issues*, Military Law and Practice, Hygiene and Sanitation, Surveying and Map Making.

* Educational institutions, with the approval of the District Educational Director, may excuse from the course on War Issues those members of the Students' Army Training Corps (1) who have had or are taking a similar course even though not identical in every detail, or (2) who have already had at least two years of work of collegiate grade in an approved institution and who should be required to concentrate the whole of their time on advanced studies. See the Special Descriptive Circulars on War Issues (C.e.12 and C.e.13).

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8. *Programs of Study for Men Twenty Years of Age or Over.* The different branches of the service for which preparation is sought may be grouped as follows:

- Group I. Infantry, Field Artillery, Heavy (Coast) Artillery (Program A).
- Group II. Air Service (Program B).
- Group III. Ordnance and Quartermaster Service (Program C).
- Group IV. Engineer Corps, Signal Corps and Chemical Warfare Service (Program D).
- Group V. Motor Transport and Truck Service (Program E).

Program A.

- Group I. Infantry, Field Artillery, Heavy (Coast) Artillery. Single Term of 12 weeks.

	Hours per week (including laboratory work and supervised study)
Military Instruction	11 hours
War Issues (or its equivalent)....	9 "
Military Law and Practice.....	9 "
Sanitation and Hygiene.....	9 "
Surveying and Map Making.....	12 "
Unassigned.	3 "
Total.....	53 hours

The course on Surveying and Map Making implies previous study of plane trigonometry. Those who have had no such preparation may, however, devote their unassigned hours to such work in elementary trigonometry as can be given in connection with the course on Surveying. Other students may devote this unassigned time, it is suggested, to French (especially if they have already studied French) or to further study in connection with the War Issues course, or to such supplementary study as may be deemed expedient. Before entering the Field or Heavy (Coast) Artillery

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on the basis of the above program it is desirable that a student should have had a course in Mathematics such as is outlined in the primary general program set forth in the Special Descriptive Circular on Mathematics (C.b.2) but he will not necessarily be debarred from entrance to this Corps through deficiency in this respect. If he has had work in Surveying or the mathematical preparation described above, but not both, he should take whichever of the two he lacks.

Program B.

Group II. Air Service. Single term of 12 weeks.

Hours per week (including laboratory work and supervised study)

Military Instruction	11	hours
War Issues (or equivalent).....	9	"
Military Law and Practice.....	9	"
Map Reading and Navigation.....	12	"
Elementary Physics	12	"
<hr/>		
Total.....	53	hours

Program C.

Group III. Ordnance Corps and Quartermaster Corps.
Single term of 12 weeks.

Hours per week (including laboratory work and supervised study)

Military Instruction	11	hours
War Issues (or equivalent).....	9	"
Military Law and Practice.....	9	"

For Quartermaster Corps

The major portion of the remaining time should be devoted to Economics, Accounting, Business Management, Statistics, Transportation and Commerce; the balance to Allied Subjects. 24 "

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For Ordnance Corps

Physics.	12 hours
Modern Ordnance	3 "
Business Management.	6 "
Unassigned.	3 "

(Program C is appropriate for limited service men as well as for full service men. Full service men who require a greater amount of scientific preparation for the Ordnance Corps should secure it in an engineering school.)

Program D.

Group IV. Engineer Corps, Signal Corps, Chemical Warfare Service. Single term of 12 weeks.

Engineer Corps. An approved program in any branch of engineering studies. See the Special Bulletin on Programs in Engineering (C.b.26).

Signal Corps. An approved program of studies in electrical engineering. See *Ibid.*

Chemical Warfare Service. An approved program of chemical engineering or chemical technology. See the Special Bulletins on Chemistry and Chemical Engineering (C.b.28) and on Ceramic Chemistry and Ceramic Chemistry Engineering (C.b.28a).

Program E.

Group V. Motor Transport and Truck Service. Single term of 12 weeks.

	Hours per week (including laboratory work and supervised study)
Military Instruction	11 hours
War Issues (or equivalent).	9 "
Military Law and Practice.	9 "
Subjects chosen from the list of Allied Subjects.	24 "
Total.	53 hours

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9. *Program of Study for Men who are Nineteen Years of Age.* For students 19 years of age, who may reasonably be expected to continue their work at an educational institution for two terms, no definite programs are prescribed, but the following suggestions are given in order that educational institutions may work out suitable programs for themselves.

All Groups. Two terms of 12 weeks each.

Hours per week during both terms (including laboratory work and supervised study)

Military Instruction	11	hours
War Issues (or equivalent).....	9	"
Additional subjects from the list of Allied Subjects.....	33	"

During either the first or second term, all the subjects prescribed for students in any group (see par. 8) must be included in the programs of those who are preparing for that group, e. g., if a student is preparing for Group II, he must include among his subjects all those prescribed in Program B, distributing these subjects in either term as may be deemed expedient.

Total.....	53	hours
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10. *Program of Study for Men who are Eighteen Years of Age.* For students 18 years of age, who may reasonably be expected to continue their work at educational institutions for three terms, no definite programs are prescribed, but the following suggestions are given in order that educational institutions may work out suitable programs for themselves.

STUDENTS' ARMY TRAINING CORPS

All Groups. Three terms of 12 weeks each.

Hours per week (including laboratory work and supervised study)

Military Instruction	11	hours
War Issues (or equivalent).....	9	"
Additional Subjects from the list of		
Allied Subjects.....	33	"

During the first, second or third term, all the subjects prescribed for students in any group (see par. 8) must be included in the programs of those who are preparing for that group, e. g., if a student is preparing for the Infantry, Field Artillery, or Heavy (Coast) Artillery, he must cover all the subjects included in Program A, distributing these subjects among the three terms as may be deemed expedient.

Total..... 53 hours

In general a subject chosen from the list of allied subjects and taken in the first term should be continued during the second and third terms by those who continue during these terms.

It is suggested that Surveying and Map Making should, in part at least, be included in the first term wherever climatic conditions preclude field work during the second term. Otherwise it should be preceded by Plane Trigonometry and Logarithms.

Those who are preparing for special service in the Field or Heavy (Coast) Artillery, involving unusual mathematical preparation, should be enabled, if possible, to include Analytic Geometry and Probability in addition to Trigonometry in their programs. See the Special Descriptive Circular on Mathematics (C.b.2).

The conditions which prevail with respect to the calling of men at various ages will demand unusual care in the

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arrangement of programs so as to preserve continuity of progress and to avoid a disjointed presentation of groups of allied subjects.

11. *Brief Description of Subjects.* The following brief description may indicate the nature of those subjects that do not at present seem to call for more precise outlines.

(a) *Military Law and Practice.* (All Groups.)

This course should treat of three related subjects: Military Law, International Military Customs and Army Administration. Military Law comprises a study of the military status of the individual, registration, enlistment, induction and transfer; the procedure of general, special and summary courts-martial; the laws governing army personnel and the penalties for infraction. International Military Customs will treat of the fundamental difference between the military organization of our Allies and our own country to such an extent as would be immediately needed by the American soldier on overseas duty.

Army Administration is a study of army organization, accountability and responsibility for property, army correspondence and all army forms for men and materials such as those for rations, commutation and travel. This last-named part of the course should take for the most part the form of actual practice in army paper work.

(b) *Surveying and Map Making.* (Group I.)

This course is intended to give the student familiarity with the usual surveying instruments and their uses, and to train him sufficiently to make him a reliable topographical surveyor of limited areas. He should receive a thorough drill in topographical map-reading with special reference to the scales and contour intervals used in the United States and French Army maps and to the physical features of military importance. He should be able rapidly and accurately to solve problems in orientation, visibility, and the layout of routes of travel for troops.

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For prospective infantry officers a study of trench and entanglement construction should be given as an introduction to the course in field engineering practice which they will receive at an Officers' Training Camp.

This course is amply covered by the outline in the special Descriptive Circular on Surveying, Topography and Map Making (C.b.1). See also the Descriptive Circular on Geology and Geography (C.b.13).

(c) *Hygiene and Sanitation.* (Group I.)

This course should include the following topics: Physical fitness, personal and public sanitation, parasitism and microbes, the sources and modes of infection, the disposal of excreta and waste matter, sewage disposal, camp cleanliness, water supply on the march and in camp, field disinfection and filtration, storage of water, camp sites, soil and drainage, sanitation of foods, nutrition, disease, isolation and disinfection, vaccine and sera, tuberculosis, venereal diseases, mental hygiene, personal hygiene, air and health, ventilation of barracks and ships, drugs and stimulants, vital statistics, civil and military health organization, the care of wounds, etc. For a further list of topics and sub-topics see the Special Descriptive Circular on Hygiene and Sanitation (C.b.15).

(d) *Map Reading and Navigation.* (Group II.)

This course should be focussed upon the interpretation of topographical maps, particularly United States and French war maps. See the Special Descriptive Circular on Geology and Geography (C.b.13). The student should become thoroughly familiar with all scales of maps and able to convert ordinary scales into the metric and graphical scales. This course should be replete with problem work, such as laying out courses of flight in still air and with wind blowing from different directions, the computation of speed of the airplane over the ground under these conditions. These latter involve

THE COLLEGES IN WAR TIME AND AFTER

the use of "drift" of the airplane. The subject of Plane Sailing will form a basis for this latter work. The student should also be able to identify the polar stars and other typical constellations and be familiar with their positions at different times of the day at different seasons.

- (e) *Elementary Physics*. (Group II and the Ordnance Section of Group III.)

This course is dealt with in the Special Descriptive Circular on Physics (C.b.11), and comprises the first term (12 weeks) of the curriculum there outlined.

- (f) *Modern Ordnance*. (Ordnance Section of Group III.)

This should be, for the most part, a course of information in the nomenclature of modern small arms, artillery and their ammunition. It should also include the accoutrement of soldiers in the different services.

- (g) *Business Management*. (Ordnance Section of Group III.)

This course should cover the more important topics usually covered in courses on the subject at colleges of business administrations, including the principles of business organization, the location, layout and equipment of plant, efficiency systems and records, employment problems, purchasing and storage, requisition systems and shop management. See the Special Descriptive Circular on Economics (C.b.4), Course IIa.

12. *Special Descriptive Circulars*. Special Descriptive Circulars containing outlines of courses in the following subjects are distributed to educational institutions at which collegiate sections of Students' Army Training Corps units have been established:

Accounting, Chemistry, Economics, English, French, Geology and Geography, Meteorology, German, Government, History, Hygiene and Sanitation, International Law, Mathematics, Physics, Psychology, Surveying, Topography and Map Making, War Issues.

STUDENTS' ARMY TRAINING CORPS

13. Special Bulletins containing information with reference to approved programs of instruction in technical and professional schools are distributed to these institutions.

14. *Miscellaneous Suggestions.* The following suggestions on miscellaneous matters are submitted to educational institutions for their guidance or consideration:

- (a) The eleven hours per week of military instruction will ordinarily comprise eight hours of military drill (including physical exercises), two hours of theoretical military instruction and one hour of inspection. The military program will probably involve Reveille at 6.40 A.M. and Taps at 10 P.M.
- (b) Provision will be made for two hours devoted to supervised study each evening, suitable rooms and supervision to be provided by the educational institutions.
- (c) Members of the S. A. T. C. will be marched to and from their classrooms and study rooms. The Commanding Officer will be directed to have the men reach their classrooms at the exact hour appointed for the beginning of lectures or recitations.
- (d) Instructors are urged to require that members of the S. A. T. C., when reciting in the classroom, shall stand at attention and shall speak with clearness and decision. Instructors should require that enunciation be distinct and the pronunciation of words correct. The possession of these qualities of speech is regarded as of military importance.
- (e) Enquiries concerning the interpretation of provisions in this General Circular should be made to the District Educational Director, Collegiate Section.

COMMITTEE ON EDUCATION AND SPECIAL TRAINING

By R. C. MACLAURIN,
Educational Director, Collegiate Section.

September 25, 1918.

THE COLLEGES IN WAR TIME AND AFTER

3. CONTRACTUAL RELATIONS

WAR DEPARTMENT
WASHINGTON, D. C.
August 28, 1918.

TO: The Presidents of all institutions authorized to maintain Students' Army Training Corps units.

From: The Committee on Education and Special Training.
(General Staff)

Dear Sirs:

A separate statement of this date sets forth the revised general plans for the Students' Army Training Corps. This letter states the basis for contractual relations with the colleges.

1. *Contract Basis.* In view of the fact that the student soldiers will be on active duty status from the time they are inducted, on or about October 1, 1918, it is incumbent on the Government to assume the expense from that time, of their housing, subsistence and instruction. This is to be done through contracts with each institution.

It is, therefore, desired by the War Department that each institution authorized to maintain a Students' Army Training Corps unit, shall contract at the earliest possible date with the War Department, for the housing, subsistence and instruction of the soldiers assigned to it as members of the Students' Army Training Corps. such contracts to take effect as of October 1st, 1918, or such date about October 1st on which inductions are made.

2. *Procedure for Making Contracts and Principles Governing Same.* It is desired that every institution shall be on a contract basis with the War Department before October 1, 1918, and at the earliest possible date prior to that time. It is not possible, however, to conduct individual negotiations and make detailed contract arrangements with each of the more than three hundred institutions concerned. The situation will, therefore, be met by temporary contract to

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be superseded later by a permanent contract, in connection with which a final basis of payment and all details will be arranged. There are herewith enclosed duplicate forms of application *which you are requested to return to the Committee on Education and Special Training, Room 595, War Department, as soon as practicable.* Return envelope is enclosed. On acceptance by the Committee and return to you of one copy, the application becomes the temporary contract with the War Department above referred to. The following may be stated with regard to the terms of this temporary contract:

(a) The per diem rate of \$1.00 for subsistence and housing is to govern temporarily pending examination of the conditions in the individual institution, and a careful working out of the costs involved. The amount so fixed is calculated from the experience of this Committee during the past five months in contracting with over 100 collegiate institutions for the housing, subsistence of over 100,000 soldiers in the National Army Training Detachment. This experience indicates that the average cost of housing is 15 to 20 cents per day; subsistence (Army ration or equivalent) 70 to 80 cents per day. The tuition charge is based on the regular per diem tuition charge of the institution in the year 1917-1918. The permanent contract, to be arrived at on the basis of ascertained facts, will take account of any losses suffered by the institution under the temporary arrangement or any excess cost paid by the Government thereunder.

(b) It is appreciated that some difficulties will be met with, in providing housing and mess facilities on short notice. It is desired that the men be housed and have their meals in as large groups as possible. In some institutions facilities already exist; in others, facilities can be readily adapted; in others, barracks or mess shack construction will be necessary. Experience shows that it will be feasible within thirty days, in practically every case, to make satisfactory temporary arrangements, by using initiative and resourcefulness and with the assistance of the Commanding Officer. There is no objection, for example, to the taking

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over by the college of fraternity houses or private dormitories, or the conversion of other buildings for housing and subsistence purposes. The kind of building is not important provided that the conditions are sanitary and healthful.

(c) *Collection of Tuition Fees from Students.* The contract status contemplates, of course, that the student soldiers shall pay nothing to the institution for their instruction nor for housing or subsistence. Since it is necessary in many cases, however, that the institutions be provided with funds for operating expenses at the commencement of the college year, and since the Government will not assume the costs until about October 1, 1918, the institution will collect a proportion of the tuition fees covering the period from the opening of the fall term to October 1, 1918. Thus if the half-year tuition fee is \$100 and the institution opens September 15, the amount collected will be one-eighth, or \$12.50.

The first payment under the Government contract will be made about two weeks after submission of the first voucher, which will cover the period from October 1 to 15, 1918, with monthly payments thereafter.

3. *Permanent Contract.* The following governing principles may be stated:

(a) The basis of payment will be reimbursement for actual and necessary costs to the institutions for the services rendered to the Government in the maintenance and instruction of the soldiers, with the stated limitation as to cost of instruction. Contract price will be arrived at by agreement after careful study of the conditions in each case, in conference with authorities of the institution.

(b) The War Department will have authority to specify and control the courses of instruction to be given by the institution.

(c) The entity and power for usefulness of the institutions will be safeguarded, so that when the contract ends the institutions shall be in condition to resume their functions of general education.

(d) The teaching force will be preserved so far as practicable, and this matter so treated that its members shall feel that in changing to the special intensive work desired

STUDENTS' ARMY TRAINING CORPS

by the Government, they are rendering a vital and greatly needed service.

(e) The Government will ask from the institutions a specific service, that is, the housing, subsistence and instruction along specified lines of a certain number of student soldiers. There will be no interference with the freedom of the institution in conducting other courses in the usual way.

(f) The contract will be for a fixed term, probably nine months, subject to renewal for a further period on reasonable notice, on terms to be agreed upon and subject to cancellation on similar notice.

4. In view of the necessity of prompt action in establishing the temporary contract basis, you are requested to return in duplicate the inclosed "request for Assignment of Soldiers" at the earliest possible date.

COMMITTEE ON EDUCATION AND SPECIAL TRAINING

By: ROBERT I. REES,
Colonel General Staff Corps, Chairman.

THE COLLEGES IN WAR TIME AND AFTER

4. LIST OF UNITS AUTHORIZED ³

I. COLLEGIATE SECTION

Alabama.—ALABAMA POLYTECHNIC INSTITUTE, Auburn; ALABAMA, UNIVERSITY OF, University; BIRMINGHAM SOUTHERN COLLEGE, Birmingham; HOWARD COLLEGE, Birmingham; SPRING HILL COLLEGE, Spring Hill; STATE NORMAL SCHOOL, Jacksonville; STATE NORMAL SCHOOL, Troy; TALLEDEGA COLLEGE (Colored), Talliedega.

Arizona.—ARIZONA, UNIVERSITY OF, Tucson.

Arkansas.—ARKANSAS BAPTIST COLLEGE (Colored), Little Rock; ARKANSAS COLLEGE, Batesville; ARKANSAS CUMBERLAND COLLEGE, Clarksville; ARKANSAS, UNIVERSITY OF, Fayetteville; HENDERSON-BROWN COLLEGE, Arkadelphia; HENDRIX COLLEGE, Conway; LITTLE ROCK COLLEGE, Little Rock; OUACHITA COLLEGE, Arkadelphia; PHILANDER SMITH COLLEGE (Colored), Little Rock; SECOND DISTRICT AGRICULTURAL SCHOOL, Russellville; STATE SCHOOL OF AGRICULTURE, Jonesboro.

California.—CALIFORNIA, UNIVERSITY OF, Berkeley; COLLEGE OF PHYSICIANS AND SURGEONS, San Francisco; LELAND STANFORD UNIVERSITY, Stanford University; LOS ANGELES STATE NORMAL, Los Angeles; OCCIDENTAL COLLEGE, Los Angeles; THE PACIFIC, UNIVERSITY OF, San Jose; POMONA COLLEGE, Claremont; REDLANDS, UNIVERSITY OF, Redlands; SAN DIEGO JUNIOR COLLEGE, San Diego; SANTA CLARA, UNIVERSITY OF, Santa Clara; ST. IGNATIUS UNIVERSITY, San Francisco; ST. MARY'S COLLEGE, Oakland; SOUTHERN CALIFORNIA, UNIVERSITY OF, Los Angeles; THROOP COLLEGE OF TECHNOLOGY, Pasadena.

³ From a circular of the War Department Committee on Education and Special Training, dated October 14, 1918, revised to November 15.

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Colorado.—COLORADO AGRICULTURAL COLLEGE, Fort Collins; COLORADO COLLEGE, Colorado Springs; COLORADO COLLEGE OF DENTAL SURGERY, Denver; COLORADO STATE TEACHERS COLLEGE, Greeley; COLORADO, UNIVERSITY OF, Boulder; DENVER, UNIVERSITY OF, Denver; STATE SCHOOL OF MINES, Golden.

Connecticut.—CONNECTICUT AGRICULTURAL COLLEGE, Storrs; TRINITY COLLEGE, Hartford; WESLEYAN UNIVERSITY, Middletown; YALE UNIVERSITY, New Haven.

Delaware.—DELAWARE COLLEGE, Newark.

District of Columbia.—CATHOLIC UNIVERSITY OF AMERICA, Washington; GEORGETOWN UNIVERSITY, Washington; GEORGE WASHINGTON UNIVERSITY, Washington; HOWARD UNIVERSITY (Colored), Washington.

Florida.—FLORIDA UNIVERSITY, Gainesville; JOHN B. STETSON UNIVERSITY, Deland; SOUTHERN COLLEGE, Sutherland.

Georgia.—ATLANTA SOUTHERN DENTAL COLLEGE, Atlanta; ATLANTA UNIVERSITY (Colored), Atlanta; EMORY UNIVERSITY, Atlanta; GEORGIA SCHOOL OF TECHNOLOGY, Atlanta; GEORGIA, UNIVERSITY OF, Athens; MERCER UNIVERSITY, Macon; MOREHOUSE COLLEGE (Colored), Atlanta; NORTH GEORGIA AGRICULTURAL COLLEGE, Dahlonega; OGLETHORPE UNIVERSITY, Oglethorpe.

Hawaii.—HAWAII COLLEGE, Honolulu.

Idaho.—IDAHO UNIVERSITY, Moscow.

Illinois.—ARMOUR INSTITUTE OF TECHNOLOGY, Chicago; AUGUSTANA COLLEGE, Rock Island; BRADLEY POLYTECHNIC INSTITUTE, Peoria; CARTHAGE COLLEGE, Carthage; CHICAGO COLLEGE OF DENTAL SURGERY, Chicago; CHICAGO UNIVERSITY, Chicago; CHICAGO VETERINARY COLLEGE, Chicago; CRANE JUNIOR COLLEGE, Chicago; DE PAUL UNIVERSITY, Chicago; EUREKA COLLEGE, Eureka; GREENVILLE COLLEGE, Greenville; HAHNEMAN MEDICAL SCHOOL, Chicago; HEDDING COLLEGE, Abingdon; ILLINOIS COLLEGE, Jacksonville; ILLINOIS UNIVERSITY, Urbana; ILLINOIS WESLEYAN UNIVERSITY, Bloomington; JAMES MILLIKEN UNIVERSITY, Decatur;

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KNOX COLLEGE, Galesburg; LAKE FORREST COLLEGE, Lake Forrest; LEWIS INSTITUTE, Chicago; LOMBARD COLLEGE, Galesburg; LOYOLA UNIVERSITY, Chicago; MCKENDREE COLLEGE, Lebanon; MCKILLIP VETERINARY COLLEGE, Chicago; MONMOUTH COLLEGE, Monmouth; NORTHWESTERN COLLEGE, Naperville; NORTHWESTERN UNIVERSITY, Evanston; ST. IGNATIUS COLLEGE, Chicago; ST. VIATOR COLLEGE, Bourbonnais; SHURTLEFF COLLEGE, Upper Alton; WHEATON COLLEGE, Wheaton; Y. M. C. A. COLLEGE, Chicago.

Indiana.—BUTLER COLLEGE, Indianapolis; CENTRAL STATE NORMAL COLLEGE, Danville; DE PAUW UNIVERSITY, Greencastle; FRANKLIN COLLEGE, Franklin; HANOVER COLLEGE, Hanover; HUNTINGTON COLLEGE, Huntington; INDIANA DENTAL COLLEGE, Indianapolis; INDIANA STATE NORMAL SCHOOL, Terre Haute; INDIANA UNIVERSITY, Bloomington; INDIANA VETERINARY COLLEGE, Indianapolis; NOTRE DAME, UNIVERSITY OF, Notre Dame; OAKLAND CITY COLLEGE, Oakland City; PURDUE UNIVERSITY, West Lafayette; ROSE POLYTECHNIC INSTITUTE, Terre Haute; STATE NORMAL SCHOOL, Muncie; TAYLOR UNIVERSITY, Upland; TRI-STATE COLLEGE, Angola; VALPARAISO UNIVERSITY, Valparaiso; WABASH COLLEGE, Crawfordsville.

Iowa.—BUENA VISTA COLLEGE, Storm Lake; CENTRAL COLLEGE, Pella; COE COLLEGE, Cedar Rapids; CORNELL COLLEGE, Mt. Vernon; DES MOINES COLLEGE, Des Moines; DRAKE UNIVERSITY, Des Moines; DUBUQUE COLLEGE, Dubuque; DUBUQUE COLLEGE AND SEMINARY, Dubuque; ELLSWORTH COLLEGE, Iowa Falls; GRINNELL COLLEGE, Grinnell; IOWA STATE COLLEGE OF A. & M., Ames; IOWA STATE TEACHERS COLLEGE, Cedar Falls; IOWA, UNIVERSITY OF, Iowa City; IOWA WESLEYAN COLLEGE, Mt. Pleasant; LUTHER COLLEGE, Decorah; MORNINGSIDE COLLEGE, Sioux City; PARSONS COLLEGE, Fairfield; SIMPSON COLLEGE, Indianola; UPPER IOWA UNIVERSITY, Fayette.

Kansas.—BAKER UNIVERSITY, Baldwin City; BETHANY COLLEGE, Lindsborg; CENTRAL COLLEGE, McPherson;

STUDENTS' ARMY TRAINING CORPS

COLLEGE OF EMPORIA, Emporia; COOPER COLLEGE, Sterling; FAIRMONT COLLEGE, Wichita; FORT HAYS NORMAL SCHOOL, Hays City; KANSAS STATE AGRICULTURAL COLLEGE, Manhattan; KANSAS STATE NORMAL, Emporia; KANSAS, UNIVERSITY OF, Lawrence; KANSAS WESLEYAN UNIVERSITY, Salina; MIDLAND COLLEGE, Atchison; OTTAWA UNIVERSITY, Ottawa; ST. MARY'S COLLEGE, St. Mary's; SOUTHWESTERN COLLEGE, Winfield; STATE MANUAL TRAINING NORMAL SCHOOL, Pittsburg; WASHBURN COLLEGE, Topeka.

Kentucky.—BEREA COLLEGE, Berea; BETHEL COLLEGE, Russellville; CENTRE COLLEGE, Danville; EASTERN KENTUCKY STATE NORMAL SCHOOL, Richmond; GEORGETOWN COLLEGE, Georgetown; KENTUCKY, UNIVERSITY OF, Lexington; KENTUCKY WESLEYAN COLLEGE, Winchester; LOUISVILLE, UNIVERSITY OF, Louisville; OGDEN COLLEGE, Bowling Green; TRANSYLVANIA COLLEGE, Lexington; WESTERN KENTUCKY STATE NORMAL SCHOOL, Bowling Green.

Louisiana.—JEFFERSON COLLEGE, Convent; LOUISIANA COLLEGE, Pineville; LOUISIANA INDUSTRIAL INSTITUTE, Ruston; LOUISIANA STATE UNIVERSITY, Baton Rouge; LOYOLA UNIVERSITY, New Orleans; ST. CHARLES COLLEGE, Grand Coteau; SOUTHWESTERN LOUISIANA IND. INST., Lafayette; TULANE UNIVERSITY, New Orleans.

Maine.—BATES COLLEGE, Lewiston; BOWDOIN COLLEGE, Brunswick; COLBY COLLEGE, Waterville; MAINE, UNIVERSITY OF, Orono.

Maryland.—BALTIMORE COLLEGE OF DENTAL SURGERY, Baltimore; JOHNS HOPKINS UNIVERSITY, Baltimore; MARYLAND STATE COLLEGE OF AGRICULTURE, College Park; MARYLAND, UNIVERSITY OF, Baltimore; MOUNT ST. MARY'S COLLEGE, Emmettsburg; ST. JOHN COLLEGE, Annapolis; WASHINGTON COLLEGE, Chestertown; WESTERN MARYLAND COLLEGE, Westminster.

Massachusetts.—AMHERST COLLEGE, Amherst; ASSUMPTION COLLEGE, Worcester; BOSTON COLLEGE, Chestnut Hill; BOSTON UNIVERSITY, Boston; CLARK COLLEGE, Worcester; COLLEGE OF THE HOLY CROSS, Worcester;

THE COLLEGES IN WAR TIME AND AFTER

HARVARD UNIVERSITY, Cambridge; INTERNATIONAL Y. M. C. A. COLLEGE, Springfield; LOWELL TEXTILE SCHOOL, Lowell; MASSACHUSETTS AGRICULTURAL COLLEGE, Amherst; MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Cambridge; NORTHEASTERN COLLEGE, Boston; TUFTS COLLEGE, Medford; WENTWORTH INSTITUTE, Boston; WILLIAMS COLLEGE, Williamstown; WORCESTER POLYTECHNIC INSTITUTE, Worcester.

Michigan.—ADRIAN COLLEGE, Adrian; ALBION COLLEGE, Albion; ALMA COLLEGE, Alma; CENTRAL STATE NORMAL SCHOOL, Mt. Pleasant; DETROIT COLLEGE OF MEDICINE AND SURGERY, Detroit; DETROIT JUNIOR COLLEGE, Detroit; DETROIT, UNIVERSITY OF, Detroit; GRAND RAPIDS JUNIOR COLLEGE, Grand Rapids; HILLSDALE COLLEGE, Hillsdale; HOPE COLLEGE, Holland; KALAMAZOO COLLEGE, Kalamazoo; MICHIGAN AGRICULTURAL COLLEGE, East Lansing; MICHIGAN COLLEGE OF MINES, Houghton; MICHIGAN STATE NORMAL COLLEGE, Ypsilanti; MICHIGAN, UNIVERSITY OF, Ann Arbor; NORTHERN STATE NORMAL SCHOOL, Marquette; OLIVET COLLEGE, Olivet; ST. CYRILLUS METHODIST SEMINARY, Orchard Lake; WESTERN STATE NORMAL SCHOOL, Kalamazoo.

Minnesota.—CARLETON COLLEGE, Northfield; COLLEGE OF ST. THOMAS, St. Paul; GUSTAVUS ADOLPHUS COLLEGE, St. Peter; HAMLINE UNIVERSITY, St. Paul; MACALESTER COLLEGE, St. Paul; MINNESOTA, UNIVERSITY OF, Minneapolis; ST. OLAF COLLEGE, Northfield.

Mississippi.—MERIDIAN COLLEGE, Meridian; MILLSAPS COLLEGE, Jackson; MISSISSIPPI A. & M. COLLEGE, Agricultural College; MISSISSIPPI COLLEGE, Clinton; MISSISSIPPI NORMAL SCHOOL, Hattiesburg; MISSISSIPPI, UNIVERSITY OF, University.

Missouri.—CENTRAL COLLEGE, Fayette; CULVER-STOCKTON COLLEGE, Canton; DRURY COLLEGE, Springfield; FIRST DISTRICT STATE NORMAL SCHOOL, Kirksville; KANSAS CITY DENTAL COLLEGE, Kansas City; KANSAS CITY POLYTECHNIC, Kansas City; MISSOURI SCHOOL OF MINES, Rolla; MISSOURI, UNIVERSITY OF, Columbia;

STUDENTS' ARMY TRAINING CORPS

MISSOURI VALLEY COLLEGE, Marshall; MISSOURI WESLEYAN COLLEGE, Cameron; PARK COLLEGE, Parkville; ST. LOUIS UNIVERSITY, St. Louis; STATE NORMAL SCHOOL, Cape Girardeau; STATE NORMAL SCHOOL, Maryville; STATE NORMAL COLLEGE, Springfield; STATE NORMAL SCHOOL, Warrensburg; TARKIO COLLEGE, Tarkio; WASHINGTON UNIVERSITY, St. Louis; WESTERN DENTAL COLLEGE, Kansas City; WESTMINSTER COLLEGE, Fulton; WILLIAM JEWEL COLLEGE, Liberty.

Montana.—MONTANA COLLEGE OF A. & M., Bozeman; MONTANA STATE SCHOOL OF MINES, Butte; MONTANA UNIVERSITY OF, Missoula; MONTANA WESLEYAN COLLEGE, Helena; MT. ST. CHARLES COLLEGE, Helena.

Nebraska.—BELLEVUE COLLEGE, Bellevue; COTNER UNIVERSITY, Bethany; CREIGHTON UNIVERSITY, Omaha; DOANE COLLEGE, Crete; HASTINGS COLLEGE, Hastings; KEARNEY STATE NORMAL, Kearney; NEBRASKA STATE NORMAL, Peru; NEBRASKA UNIVERSITY OF, Lincoln; NEBRASKA WESLEYAN UNIVERSITY, University Place; WAYNE NORMAL SCHOOL, Wayne.

Nevada.—STATE UNIVERSITY OF NEVADA, Reno.

New Hampshire.—DARTMOUTH COLLEGE, Hanover; NEW HAMPSHIRE COLLEGE OF A. & M., Durham.

New Jersey.—PRINCETON UNIVERSITY, Princeton; RUTGERS COLLEGE, New Brunswick; STEVENS INSTITUTE OF TECHNOLOGY, Hoboken.

New Mexico.—NEW MEXICO COLLEGE OF A. & M., State College; NEW MEXICO MILITARY INSTITUTION, Roswell; NEW MEXICO UNIVERSITY OF, Albuquerque.

New York.—ALFRED UNIVERSITY, Alfred; BUFFALO UNIVERSITY OF, Buffalo; CANISIUS COLLEGE, Buffalo; CLARKSON COLLEGE OF TECHNOLOGY, Potsdam; COLGATE UNIVERSITY, Hamilton; COLLEGE OF DENTAL AND ORAL SURGERY OF NEW YORK, New York City; COLLEGE OF THE CITY OF NEW YORK, New York City; COLUMBIA UNIVERSITY, New York City; COOPER UNION DAY TECHNICAL SCHOOL, New York City; CORNELL UNIVERSITY, Ithaca; FORDHAM UNIVERSITY, New York City;

THE COLLEGES IN WAR TIME AND AFTER

HAMILTON COLLEGE, Clinton; HOBART COLLEGE, Geneva; MANHATTAN COLLEGE, New York City; NEW YORK COLLEGE OF DENTISTRY, New York City; NEW YORK HOMEOPATHIC MEDICAL COLLEGE, New York City; NEW YORK STATE COLLEGE FOR TEACHERS, Albany; NEW YORK UNIVERSITY, New York City; NIAGARA UNIVERSITY, Niagara; POLYTECHNIC INSTITUTE OF BROOKLYN, Brooklyn; PRATT INSTITUTE, Brooklyn; RENSSELAER POLYTECHNIC INSTITUTE, Troy; ROCHESTER, UNIVERSITY OF, Rochester; ST. BONAVENTURE COLLEGE, St. Bonaventure; ST. JOHN'S COLLEGE, Brooklyn; ST. LAWRENCE UNIVERSITY, Canton; ST. STEPHEN'S COLLEGE, Annandale; SYRACUSE UNIVERSITY, Syracuse; THE LONG ISLAND COLLEGE HOSPITAL, Brooklyn; UNION UNIVERSITY, Schenectady.

North Carolina.—ATLANTIC CHRISTIAN COLLEGE, Wilson; BIDDLE UNIVERSITY (Colored), Charlotte; CATAWBA COLLEGE, Newton; DAVIDSON COLLEGE, Davidson; ELON COLLEGE, Elon; LENIOR COLLEGE, Hickory; NORTH CAROLINA STATE COLLEGE OF AGRICULTURE AND ENGINEERING, W. Raleigh; NORTH CAROLINA, UNIVERSITY OF, Chapel Hill; SHAW UNIVERSITY (Colored), Raleigh; TRINITY COLLEGE, Durham; WAKE FOREST COLLEGE, Wake Forest.

North Dakota.—FARGO COLLEGE, Fargo; JAMESTOWN COLLEGE, Jamestown; NORTH DAKOTA AGRICULTURAL COLLEGE, Agricultural College; NORTH DAKOTA, UNIVERSITY OF, Grand Forks.

Ohio.—ANTIOCH COLLEGE, Yellow Springs; ASHLAND COLLEGE, Ashland; BALDWIN-WALLACE COLLEGE, Berea; CAPITOL UNIVERSITY, Columbus; CASE SCHOOL OF APPLIED SCIENCE, Cleveland; CINCINNATI, UNIVERSITY OF, Cincinnati; DEFIANCE COLLEGE, Defiance; DENISON UNIVERSITY, Granville; ECLECTIC MEDICAL COLLEGE, Cincinnati; FINDLAY COLLEGE, Findlay; HEIDELBERG UNIVERSITY, Tiffin; HIRAM COLLEGE, Hiram; KENYON COLLEGE, Gambier; MARIETTA COLLEGE, Marietta; MIAMI UNIVERSITY, Oxford; MT. UNION COLLEGE, Alliance; MUNICIPAL UNIVERSITY OF AKRON, Akron;

STUDENTS' ARMY TRAINING CORPS

MUSKINGUM COLLEGE, New Concord; OBERLIN COLLEGE, Oberlin; OHIO COLLEGE OF DENTAL SURGERY, Cincinnati; OHIO NORTHERN UNIVERSITY, Ada; OHIO STATE UNIVERSITY, Columbus; OHIO UNIVERSITY, Athens; OHIO WESLEYAN UNIVERSITY, Delaware; OTTERBEIN UNIVERSITY, Westerville; ST. IGNATIUS COLLEGE, Cleveland; ST. MARY'S COLLEGE, Dayton; ST. XAVIER COLLEGE, Cincinnati; TOLEDO UNIVERSITY, Toledo; WESTERN RESERVE UNIVERSITY, Cleveland; WILBERFORCE UNIVERSITY (Colored), Wilberforce; WITTENBERG COLLEGE, Springfield; WOOSTER, COLLEGE OF, Wooster.

Oklahoma.—CENTRAL STATE NORMAL SCHOOL, Edmond; EAST CENTRAL NORMAL SCHOOL, Ada; HENRY KENDALL COLLEGE, Tulsa; NORTH EASTERN STATE NORMAL SCHOOL, Tahlequah; NORTHWESTERN NORMAL SCHOOL, Alva; OKLAHOMA A. & M. COLLEGE, Stillwater; OKLAHOMA, UNIVERSITY OF, Norman; PHILIPS UNIVERSITY, Enid; SOUTHEASTERN STATE NORMAL SCHOOL, Durant; SOUTHWESTERN NORMAL SCHOOL, Weatherford.

Oregon.—NORTH PACIFIC COLLEGE OF DENTISTRY, Portland; OREGON AGRICULTURAL COLLEGE, Corvallis; OREGON, UNIVERSITY OF, Eugene; REED COLLEGE, Portland; WILLIAMETTE UNIVERSITY, Salem.

Pennsylvania.—ALRIGHT COLLEGE, Myerstown; ALLEGHENY COLLEGE, Meadville; CARNEGIE INSTITUTE OF TECHNOLOGY, Pittsburgh; BUCKNELL UNIVERSITY, Lewisburg; DICKINSON COLLEGE, Carlisle; DREXEL INSTITUTE, Philadelphia; DUQUESNE UNIVERSITY OF THE HOLY GHOST, Pittsburgh; FRANKLIN AND MARSHALL COLLEGE, Lancaster; GENEVA COLLEGE, Beaver Falls; GODFREY STATE NORMAL SCHOOL, Millersville; GROVE CITY COLLEGE, Grove City; HAHNEMANN MEDICAL COLLEGE, Philadelphia; JEFFERSON MEDICAL COLLEGE, Philadelphia; LAFAYETTE COLLEGE, Easton; LEBANON VALLEY COLLEGE, Annville; LEHIGH UNIVERSITY, South Bethlehem; LINCOLN UNIVERSITY (Colored), Chester; MANSFIELD STATE NORMAL, Mansfield; MORAVIAN COLLEGE, Bethlehem; MUHLENBERG COLLEGE, Allentown;

THE COLLEGES IN WAR TIME AND AFTER

PENNSYLVANIA COLLEGE, Gettysburg; PENNSYLVANIA MILITARY COLLEGE, Chester; PENNSYLVANIA STATE COLLEGE, State College; PENNSYLVANIA, UNIVERSITY OF, Philadelphia; PHILADELPHIA TEXTILE SCHOOL, Philadelphia; PITTSBURG, UNIVERSITY OF, Pittsburgh; ST. JOSEPH'S COLLEGE, Philadelphia; STATE NORMAL SCHOOL, East Stroudsburg; STATE NORMAL SCHOOL, Indiana; SUSQUEHANNA UNIVERSITY, Selinsgrove; SWARTHMORE COLLEGE, Swarthmore; TEMPLE UNIVERSITY, Philadelphia; THIEL COLLEGE, Greenville; URSINUS COLLEGE, Collegeville; VILLANOVA COLLEGE, Villanova; WASHINGTON AND JEFFERSON COLLEGE, Washington; WAYNESBURG COLLEGE, Waynesburg; WEST CHESTER STATE NORMAL, West Chester; WESTMINSTER COLLEGE, New Wilmington.

Porto Rico.—COLLEGE OF AGRICULTURE AND MECHANIC ARTS, Mayaguez; PORTO RICO, UNIVERSITY OF, San Juan.

Rhode Island.—BROWN UNIVERSITY, Providence; RHODE ISLAND STATE COLLEGE, Kingston.

South Carolina.—CLEMSON AGRICULTURAL COLLEGE, Clemson; COLLEGE OF CHARLESTON, Charleston; ERSKINE COLLEGE, Greenville; FURMAN UNIVERSITY, Greenville; NEWBERRY COLLEGE, Newberry; PRESBYTERIAN COLLEGE OF SOUTH CAROLINA, Clinton; SOUTH CAROLINA MEDICAL COLLEGE, Charleston; SOUTH CAROLINA, UNIVERSITY OF, Columbia; THE CITADEL, THE MILITARY COLLEGE OF SOUTH CAROLINA, Charleston; WOFFORD COLLEGE, Spartanburg.

South Dakota.—DAKOTA WESLEYAN UNIVERSITY, Mitchell; HURON COLLEGE, Huron; SOUTH DAKOTA SCHOOL OF MINES, Rapid City; SOUTH DAKOTA STATE COLLEGE OF A. & M., Brookings; SOUTH DAKOTA, UNIVERSITY OF, Vermillion; YANKTON COLLEGE, Yankton.

Tennessee.—CARSON AND NEWMAN COLLEGE, Jefferson City; CHATTANOOGA, UNIVERSITY OF, Chattanooga; CUMBERLAND UNIVERSITY, Lebanon; EAST TENN. STATE NORMAL, Johnson City; FISK UNIVERSITY (Colored), Nashville; GEORGE PEABODY COLLEGE FOR TEACHERS, Nash-

STUDENTS' ARMY TRAINING CORPS

ville; KING COLLEGE, Bristol; KNOXVILLE COLLEGE (Colored), Knoxville; LINCOLN MEMORIAL COLLEGE, Cumberland Gap; MARYVILLE COLLEGE, Maryville; MEHARRY MEDICAL COLLEGE (Colored), Nashville; MIDDLE TENNESSEE STATE NORMAL, Murfreesboro; SOUTHWESTERN PRESBYTERIAN UNIV., Clarksville; TENNESSEE POLYTECHNIC INSTITUTE, Cookeville; TENNESSEE, UNIVERSITY OF, Knoxville; TUSCULUM COLLEGE, Greenville; UNION UNIVERSITY, Jackson; UNIVERSITY OF THE SOUTH, Sewanee; VANDERBILT UNIVERSITY, Nashville; WEST TENNESSEE STATE NORMAL SCHOOL, Memphis.

Texas.—ABILENE CHRISTIAN COLLEGE, Abilene; A. & M. COLLEGE OF TEXAS, College Station; ALEXANDER COLLEGE, Jacksonville; AUSTIN COLLEGE, Sherman; BAYLOR UNIVERSITY, Waco; BISHOP COLLEGE (Colored), Marshall; BURLESON COLLEGE, Greenville; DECATUR COLLEGE, Decatur; EAST TEXAS STATE NORMAL SCHOOL, Commerce; HOWARD PAYNE COLLEGE, Brownwood; MARSHALL, COLLEGE OF, Marshall; MERIDIAN COLLEGE, Meridian; NORTH TEXAS STATE NORMAL COLLEGE, Denton; RICE INSTITUTE, THE, Houston; SAM HOUSTON STATE NORMAL INSTITUTE, Huntsville; SIMMONS COLLEGE, Abilene; SOUTHERN METHODIST UNIVERSITY, Dallas; SOUTHWEST TEXAS NORMAL, San Marcos; SOUTHWESTERN UNIVERSITY, Georgetown; TEXAS CHRISTIAN UNIVERSITY, Fort Worth; TEXAS MILITARY COLLEGE, Terrell; TEXAS, UNIVERSITY OF, Austin; TRINITY UNIVERSITY, Waxahachie; WAYLAND COLLEGE, Plainview; WESLEY COLLEGE, Greenville; WEST TEXAS MILITARY ACADEMY, San Antonio; WEST TEXAS NORMAL, Canyon; WILEY UNIVERSITY (Colored), Marshall.

Utah.—AGRICULTURAL COLLEGE OF UTAH, Logan; BRIGHAM YOUNG UNIVERSITY, Provo; UTAH, UNIVERSITY OF, Salt Lake City.

Vermont.—MIDDLEBURY COLLEGE, Middlebury; NORWICH UNIVERSITY, Northfield; UNIVERSITY OF VERMONT AND STATE AGRICULTURAL COLLEGE, Burlington.

THE COLLEGES IN WAR TIME AND AFTER

Virginia.—EMORY AND HENRY COLLEGE, Emory; HAMPDEN-SIDNEY COLLEGE, Hampden-Sidney; MEDICAL COLLEGE OF VIRGINIA, Richmond; RANDOLPH-MACON COLLEGE, Ashland; RICHMOND COLLEGE, Richmond; ROANOKE COLLEGE, Salem; VIRGINIA, UNIVERSITY OF, Charlottesville; VIRGINIA A. & M. & POLYTECHNIC INSTITUTE, Blacksburg; VIRGINIA CHRISTIAN COLLEGE, Lynchburg; VIRGINIA MILITARY INSTITUTE, Lexington; VIRGINIA UNION UNIVERSITY (Colored), Richmond; WASHINGTON AND LEE, Lexington; WILLIAM AND MARY COLLEGE, Williamsburg.

Washington.—COLLEGE OF PUGET SOUND, Tacoma; GONZAGA UNIVERSITY, Spokane; STATE COLLEGE OF WASHINGTON, Pullman; WASHINGTON STATE NORMAL COLLEGE, Cheney; WASHINGTON, UNIVERSITY OF, Seattle; WHITMAN COLLEGE, Walla Walla.

West Virginia.—BETHANY COLLEGE, Bethany; DAVIS AND ELKINS COLLEGE, Elkins; WEST VIRGINIA COLLEGIATE INSTITUTE (Colored), Institute; WEST VIRGINIA WESLEYAN COLLEGE, Buckhannon; WEST VIRGINIA, UNIVERSITY OF, Morgantown.

Wisconsin.—BELOIT COLLEGE, Beloit; CAMPION COLLEGE, Prairie du Chien; CARROLL COLLEGE, Waukesha; LACROSSE STATE NORMAL SCHOOL, LaCrosse; LAWRENCE COLLEGE, Appleton; MARQUETTE UNIVERSITY, Milwaukee; MILTON COLLEGE, Milton; MILWAUKEE STATE NORMAL SCHOOL, Milwaukee; OSHKOSH STATE NORMAL SCHOOL, Oshkosh; RACINE COLLEGE, Racine; RIPON COLLEGE, Ripon; RIVER FALLS STATE NORMAL SCHOOL, River Falls; SCHOOL OF ENGINEERING, Milwaukee; STATE NORMAL SCHOOL, Eau Claire; STATE NORMAL SCHOOL, Platteville; STATE NORMAL SCHOOL, Stevens Point; STATE NORMAL SCHOOL, Superior; STATE NORMAL SCHOOL, Whitewater; STOUT INSTITUTE, Menominee; WISCONSIN, UNIVERSITY OF, Madison.

Wyoming.—WYOMING, UNIVERSITY OF, Laramie.

STUDENTS' ARMY TRAINING CORPS

II. VOCATIONAL TRAINING SECTIONS

- Alabama.*—ALABAMA POLYTECHNIC INSTITUTE, Auburn; ALABAMA, UNIVERSITY OF, Tuscaloosa; TUSKEGEE INSTITUTE (Colored), Tuskegee.
- Arkansas.*—ARKANSAS, UNIVERSITY OF, Fayetteville; BRANCH NORMAL SCHOOL (Colored), Pine Bluff.
- Arizona.*—ARIZONA, UNIVERSITY OF, Tucson.
- California.*—CALIFORNIA, UNIVERSITY OF, Berkeley; LOS ANGELES STATE NORMAL SCHOOL, Los Angeles; OAKLAND TECHNICAL HIGH SCHOOL, Oakland; POLYTECHNICAL SCHOOL OF ENGINEERING, Oakland.
- Connecticut.*—YALE UNIVERSITY, New Haven.
- Colorado.*—COLORADO COLLEGE, Colorado Springs; COLORADO STATE AGRICULTURAL COLLEGE, Fort Collins; COLORADO, UNIVERSITY OF, Boulder.
- Delaware.*—DELAWARE COLLEGE, Newark.
- District of Columbia.*—BLISS ELECTRICAL SCHOOL, Washington; HOWARD UNIVERSITY (Colored), Washington.
- Florida.*—FLORIDA, UNIVERSITY OF, Gainesville.
- Georgia.*—ATLANTA UNIVERSITY, Atlanta; GEORGIA SCHOOL OF TECHNOLOGY, Atlanta; GEORGIA, UNIVERSITY OF, Athens.
- Idaho.*—IDAHO SCHOOL OF TECHNOLOGY, Pocatello; IDAHO, UNIVERSITY OF, Moscow.
- Illinois.*—ARMOUR INSTITUTE OF TECHNOLOGY, Chicago; BRADLEY POLYTECHNIC INSTITUTE, Peoria; CHICAGO BOARD OF EDUCATION (Armour), Chicago; CHICAGO BOARD OF EDUCATION (Brennan), Chicago; CHICAGO BOARD OF EDUCATION (Harrison), Chicago; CHICAGO BOARD OF EDUCATION (Old S. Div. H. S.), Chicago; CHICAGO BOARD OF TRADE, Chicago; CHICAGO, UNIVERSITY OF, Chicago; LEWIS INSTITUTE, Chicago; LOYAL ORDER OF MOOSE, Mooseheart; NORTHWESTERN UNIVERSITY, Evanston.
- Indiana.*—INDIANA UNIVERSITY, Bloomington; INDIANAPOLIS CHAMBER OF COMMERCE, No. 1, Indianapolis; INDIANAPOLIS CHAMBER OF COMMERCE, No. 2, Indianapolis; INDIANAPOLIS CHAMBER OF COMMERCE, No. 3,

THE COLLEGES IN WAR TIME AND AFTER

- Indianapolis; INDIANAPOLIS CHAMBER OF COMMERCE, No. 4, Indianapolis; INTERLAKEN SCHOOL, Rolling Prairie; PURDUE UNIVERSITY, West Lafayette; RICHMOND COMMERCIAL CLUB, Richmond; ROSE POLYTECHNIC INSTITUTE, Terre Haute; VALPARAISO UNIVERSITY, Valparaiso; WARSAW CHAMBER OF COMMERCE, Warsaw.
- Iowa*.—IOWA A. & M. COLLEGE, Ames; IOWA, UNIVERSITY OF, Iowa City.
- Kansas*.—FORT HAYS NORMAL SCHOOL, Hays City; KANSAS STATE AGRICULTURAL COLLEGE, Manhattan; KANSAS, UNIVERSITY OF, Lawrence; WESTERN UNIVERSITY (Colored), Quindaro.
- Kentucky*.—KENTUCKY, UNIVERSITY OF, Lexington.
- Louisiana*.—LOUISIANA UNIVERSITY, Baton Rouge; TULANE UNIVERSITY, New Orleans.
- Maine*.—MAINE, UNIVERSITY OF, Orono.
- Maryland*.—MARYLAND STATE AGRICULTURAL COLLEGE, College Park.
- Massachusetts*.—FRANKLIN UNION, Boston; NEWTON SCHOOL BOARD, Newton; SPRINGFIELD TECHNICAL H. S., Springfield; TUFTS COLLEGE, Medford; WENTWORTH INSTITUTE, Boston.
- Michigan*.—MICHIGAN SCHOOL OF MINES, Houghton; MICHIGAN AGRICULTURAL COLLEGE, East Lansing; MICHIGAN, UNIVERSITY OF, Ann Arbor.
- Minnesota*.—MINNESOTA, UNIVERSITY OF (Agri.), St. Paul; MINNESOTA, UNIVERSITY OF, Minneapolis; WILLIAM HOOD DUNWOODY INDUSTRIAL INSTITUTE, Minneapolis.
- Mississippi*.—MISSISSIPPI A. & M. COLLEGE, Starkville.
- Missouri*.—MISSOURI, UNIVERSITY OF, Columbia; RAHE AUTO SCHOOL, Kansas City; ST. LOUIS BOARD OF EDUCATION, St. Louis; SWEENEY AUTO SCHOOL, Kansas City; WASHINGTON UNIVERSITY, St. Louis.
- Montana*.—MONTANA, UNIVERSITY OF, Missoula.
- Nebraska*.—NEBRASKA, UNIVERSITY OF, Lincoln.
- Nevada*.—NEVADA, UNIVERSITY OF, Reno.
- New Hampshire*.—DARTMOUTH COLLEGE, Hanover; NEW HAMPSHIRE STATE COLLEGE OF A. & M., Durham.

STUDENTS' ARMY TRAINING CORPS

New Mexico.—NEW MEXICO A. & M. COLLEGE, State College.

New York.—CLARKSON COLLEGE OF TECHNOLOGY, Potsdam; COLUMBIA UNIVERSITY, New York; CORNELL UNIVERSITY, Ithaca; COLLEGE OF THE CITY OF NEW YORK, New York; NEW YORK STATE COLLEGE FOR TEACHERS, Albany; NEW YORK UNIVERSITY, New York; OSWEGO NORMAL SCHOOL, Oswego; ROCHESTER A. & M. INSTITUTE, Rochester; SAUNDERS TRADE SCHOOL, Yonkers; SYRACUSE UNIVERSITY, Syracuse; TROY CENTRAL HIGH SCHOOL, Troy.

North Carolina.—NEGRO A. & T. COLLEGE, Greensboro.

North Dakota.—NORTH DAKOTA AGRICULTURAL COLLEGE, Fargo; NORTH DAKOTA SCHOOL OF MINES, Grand Forks.

Ohio.—CINCINNATI BOARD OF EDUCATION, Cincinnati; CINCINNATI, UNIVERSITY OF, Cincinnati; COMBINED NORMAL & IND. (Colored), Wilberforce; MUNICIPAL UNIVERSITY OF AKRON, Akron; OHIO MECHANICS INSTITUTE, Cincinnati; OHIO STATE UNIVERSITY, Columbus; TOLEDO UNIVERSITY, Toledo.

Oklahoma.—OKLAHOMA, UNIVERSITY OF, Norman.

Oregon.—BENSON POLYTECHNIC INSTITUTE, Portland; OREGON STATE AGRICULTURAL COLLEGE, Corvallis.

Pennsylvania.—BOWMAN TECHNICAL SCHOOL, Lancaster; CARNEGIE INSTITUTE OF TECHNOLOGY, Pittsburgh; ERIE SCHOOL BOARD, Erie; LAFAYETTE COLLEGE, Easton; LEHIGH UNIVERSITY, South Bethlehem; PENNSYLVANIA STATE COLLEGE, State College; PITTSBURGH, UNIVERSITY OF, Pittsburgh; POLISH NATIONAL ALLIANCE COLLEGE, Cambridge Springs.

South Carolina.—CLEMSON AGRICULTURAL COLLEGE, Clemson; SOUTH CAROLINA STATE A. & M. COLLEGE (Colored), Orangeburg; SOUTH CAROLINA, UNIVERSITY OF, Columbia.

South Dakota.—SOUTH DAKOTA STATE A. & M. COLLEGE, Brookings; SOUTH DAKOTA SCHOOL OF MINES, Rapid City; SOUTH DAKOTA, UNIVERSITY OF, Vermillion.

Tennessee.—TENNESSEE, UNIVERSITY OF, Knoxville.

THE COLLEGES IN WAR TIME AND AFTER

Texas.—TEXAS A. & M. COLLEGE, College Station; TEXAS, UNIVERSITY OF, Austin.

Utah.—UTAH AGRICULTURAL COLLEGE, Logan; UTAH, UNIVERSITY OF, Salt Lake City.

Vermont.—VERMONT, UNIVERSITY OF, Burlington.

Virginia.—HAMPTON INSTITUTE (Colored), Hampton; RICHMOND CITY SCHOOL BOARD, Richmond; VIRGINIA, UNIVERSITY OF, Charlottesville.

Washington.—MODERN AUTO SCHOOL, Spokane; WASHINGTON STATE COLLEGE, Pullman.

Wisconsin.—BELOIT COLLEGE, Beloit; WISCONSIN, UNIVERSITY OF, Madison.

West Virginia.—WEST VIRGINIA, UNIVERSITY OF, Morgantown.

III. NAVAL SECTIONS *

Alabama.—ALABAMA, UNIVERSITY OF, University; ALABAMA POLYTECHNIC INSTITUTE, Auburn.

California.—CALIFORNIA, UNIVERSITY OF, Berkeley; LELAND STANFORD JUNIOR UNIVERSITY, Stanford University; SOUTHERN CALIFORNIA, UNIVERSITY OF, Los Angeles.

Colorado.—COLORADO, UNIVERSITY OF, Boulder; DENVER, UNIVERSITY OF, Denver.

Connecticut.—YALE UNIVERSITY, New Haven.

District of Columbia.—GEORGETOWN UNIVERSITY, Washington; GEORGE WASHINGTON UNIVERSITY, Washington.

Florida.—FLORIDA, UNIVERSITY OF, Gainesville.

Georgia.—EMORY UNIVERSITY, Atlanta; GEORGIA SCHOOL OF TECHNOLOGY, Atlanta; GEORGIA, UNIVERSITY OF, Athens.

* At the institutions named hereafter a limited number of registrants may, upon indicating their preference, be inducted into the Navy or the Marine Corps. Such men will wear naval uniforms, and pay their own expenses individually from an allowance made to them by the Navy Department. The Naval and Marine Sections will attend all drills and exercises of the Students' Army Training Corps.

STUDENTS' ARMY TRAINING CORPS

Illinois.—ARMOUR INSTITUTE OF TECHNOLOGY, Chicago; CHICAGO, UNIVERSITY OF, Chicago; ILLINOIS, UNIVERSITY OF, Urbana; NORTHWESTERN UNIVERSITY, Evanston.

Indiana.—INDIANA STATE UNIVERSITY, Bloomington; NOTRE DAME, UNIVERSITY OF, Notre Dame; PURDUE UNIVERSITY, Lafayette.

Iowa.—IOWA STATE COLLEGE OF A. and M. ARTS, Ames; IOWA, UNIVERSITY OF, Iowa City.

Kansas.—KANSAS, UNIVERSITY OF, Lawrence.

Kentucky.—STATE UNIVERSITY OF KENTUCKY, Lexington.

Louisiana.—LOUISIANA STATE UNIVERSITY, Baton Rouge; TULANE UNIVERSITY, New Orleans.

Maine.—BOWDOIN COLLEGE, Brunswick; MAINE, UNIVERSITY OF, Orono.

Maryland.—JOHNS HOPKINS UNIVERSITY, Baltimore.

Massachusetts.—AMHERST COLLEGE, Amherst; BOSTON UNIVERSITY, Boston; COLLEGE OF THE HOLY CROSS, Worcester; HARVARD UNIVERSITY, Cambridge; MASS. INST. OF TECHNOLOGY, Cambridge; TUFTS COLLEGE, Medford; WILLIAMS COLLEGE, Williamstown; WORCESTER POLYTECHNIC INSTITUTE, Worcester.

Michigan.—DETROIT, UNIVERSITY OF, Detroit; MICHIGAN AGRICULTURAL COLLEGE, East Lansing; MICHIGAN, UNIVERSITY OF, Ann Arbor.

Minnesota.—MINNESOTA, UNIVERSITY OF, Minneapolis.

Mississippi.—MISSISSIPPI A. & M. COLLEGE, Starkville.

Missouri.—MISSOURI, UNIVERSITY OF, Columbia; ST. LOUIS UNIVERSITY, St. Louis; WASHINGTON UNIVERSITY, St. Louis.

Nebraska.—NEBRASKA, UNIVERSITY OF, Lincoln.

New Hampshire.—DARTMOUTH COLLEGE, Hanover; NEW HAMPSHIRE COLLEGE, Durham.

New Jersey.—PRINCETON UNIVERSITY, Princeton; STEVENS INSTITUTE OF TECHNOLOGY, Hoboken.

New York.—BUFFALO, UNIVERSITY OF, Buffalo; COLGATE UNIVERSITY, Hamilton; COLLEGE OF THE CITY OF NEW YORK, New York City; COLUMBIA UNIVERSITY, New York; CORNELL UNIVERSITY, Ithaca; FORDHAM UNIVER-

THE COLLEGES IN WAR TIME AND AFTER

SITY, New York; NEW YORK UNIVERSITY, New York; PRATT INSTITUTE, Brooklyn; RENSSELAER POLYTECHNIC INSTITUTE, Troy; SYRACUSE UNIVERSITY, Syracuse; WEBB'S ACADEMY, Fordham Heights, N. Y. City.

North Carolina.—NORTH CAROLINA STATE COLLEGE OF AGRICULTURE AND ENGINEERING, W. Raleigh; THE UNIVERSITY OF NORTH CAROLINA, Chapel Hill.

Ohio.—CASE SCHOOL OF APPLIED SCIENCE, Cleveland; CINCINNATI, UNIVERSITY OF, Cincinnati; OHIO NORTHERN UNIVERSITY, Ada; OHIO UNIVERSITY, Athens; OHIO STATE UNIVERSITY, Columbus; WESTERN RESERVE UNIVERSITY, Cleveland.

Oklahoma.—OKLAHOMA, UNIVERSITY OF, Norman.

Oregon.—OREGON AGRICULTURAL COLLEGE, Corvallis; OREGON, UNIVERSITY OF, Eugene.

Pennsylvania.—CARNEGIE INSTITUTE OF TECHNOLOGY, Pittsburgh; LAFAYETTE COLLEGE, Easton; LEHIGH UNIVERSITY, S. Bethlehem; PENNSYLVANIA STATE COLLEGE, State College; PENNSYLVANIA, UNIVERSITY OF, Philadelphia; PITTSBURGH, UNIVERSITY OF, Pittsburgh.

Rhode Island.—BROWN UNIVERSITY, Providence.

South Carolina.—CLEMSON COLLEGE, Clemson.

Tennessee.—TENNESSEE, UNIVERSITY OF, Knoxville.

Texas.—BAYLOR UNIVERSITY, Waco; TEXAS A. & M. COLLEGE, College Station; TEXAS, UNIVERSITY OF, Austin.

Vermont.—VERMONT, UNIVERSITY OF, Burlington.

Virginia.—VIRGINIA POLYTECHNIC INSTITUTE, Blacksburg; VIRGINIA, UNIVERSITY OF, University.

West Virginia.—WEST VIRGINIA UNIVERSITY, Morgantown.

Washington.—WASHINGTON STATE COLLEGE, Pullman; WASHINGTON, UNIVERSITY OF, Seattle.

Wisconsin.—MARQUETTE UNIVERSITY, Milwaukee; WISCONSIN, UNIVERSITY OF, Madison.

IV. MARINE SECTIONS

CORNELL UNIVERSITY, Ithaca, N. Y.

HARVARD COLLEGE, Cambridge, Mass.

GEORGIA SCHOOL OF TECHNOLOGY, Atlanta, Ga.

STUDENTS' ARMY TRAINING CORPS

KANSAS, UNIVERSITY OF, Lawrence, Kan.
LELAND STANFORD JUNIOR UNIVERSITY, Palo Alto, Cal.
MINNESOTA, UNIVERSITY OF, Minneapolis, Minn.
NORTH CAROLINA, UNIVERSITY OF, Chapel Hill.
TEXAS, UNIVERSITY OF, Austin, Texas.
VIRGINIA MILITARY INSTITUTE, Lexington, Va.
WASHINGTON, UNIVERSITY OF, Seattle, Wash.
WISCONSIN, UNIVERSITY OF, Madison, Wis.
YALE UNIVERSITY, New Haven, Conn.

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